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ABSTRACT

Fifteen author-contributed papers are presented from the 1983 First European Conference on Research in Rehabilitation. The following titles and authors are represented: "Disability in a Large Public Sector Work Force" (D. Walker); "The Accidents and Absence of Disabled People at Work" (M. Kettle); "Employment Rehabilitation of Production Workers in Heavy Industry" (S.P. Whalley and H.J. Watson); "Systematic Work Design for Disabled People); (M. Hartenbach et al); "Employment and Disability: A European Perspective" (M. Croxen); "The Social Integration of Severely Disabled Young People with Special Reference to Work and Occupation" (O. Hook and A. Jesperson); "Employment Rehabilitation in Great Britian: An Evaluation and Review of Recent Developments" (P. Cornes); "Measuring the Outcome of Employment Rehabilitation" (S. Cumella); "A Follow-Up of Work Evaluation Clients" (J. Karjula); "Appropriate Training and Job Experience Produce Qualified Staff" (J. Stone and J. Binford); "Causes and Consequences of Hand Injury" (M. Smith et al.); "Rehabilitation of Hand Injuries in Poland" (M. Pieniazek); "Antecedent Angina, Work Level and Outcome after Myocardial Infarction" (A. Philip); "Back Pain and Employment" (H.J. Glanville and R. Tebay); and "Work, Disability and Rehabilitation in Perspective" (J. Hunter and P. Cornes). (CL)

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Edited by Paul Cornes and John Hunter

EDINBURGH
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6-8 APRIL 1983
EUROPEAN
RESEARCH IN
1st
CONFERENCE
REHABILITATION

WORK, DISABILITY and REHABILITATION

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Papers on vocational rehabilitation and employment of people with disabilities presented at the First European Conference on Research in Rehabilitation, Edinburgh, 6-8 April, 1983

Edited by Paul Cornes and John Hunter

Rehabilitation Studies Unit, University of Edinburgh

University Center for International Rehabilitation
Michigan State University
East Lansing, Michigan

May, 1985

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Foreword

Thomas Carlyle said that "Work is the grand cure of all maladies that ever beset mankind". Unfortunately for disabled people the cure cannot always be available, but that is not for want of endeavour as this book testifies. For most patients in the mesiatric age-group, return to a job is their principal aim. Whether or not it will be achieved, it is important for all who contribute to the management of disability to keep the aim of what the patient wants to the forefront.

The contents of the various chapters draw attention to the extent of the requirements. The difference in backgrounds of the authors coming as they do from the several relevant professions emphasises that no one approach conveys the monoploy of wisdom. The variety of their nationalities makes clear that no one country has solved all the difficulties. This diversity is heartening as it reflects widespread enthusiasm to tackle the high rate of unemployment among disabled people.

These papers are a selection from the 140 papers read at the First European Conference on Research in Rehabilitation held in April 1983. They are on one theme taken from the many themes discussed. This book is a tangible record of this important part of the conference. The conference was a particular pleasure for me, coming as it did as the highlight of my two years as President of the Society for Research in Rehabilitation.

Appreciation is due to both authors, not only for the preparation of the book but also for the effort they put in to make the conference such a success, particularly Dr John Hunter, Chairman of the Organizing Committee. Whether participant, author or reader, we are all indebted to them.

Professor Cairns Aitken
Rehabilitation Studies Unit
University of Edinburgh

March 1985

Acknowledgements

A successful scientific conference is the product of many different contributions. It is appropriate therefore to acknowledge here not only the authors whose papers are included in this volume, and other conference presenters and participants, but also the backstage contributions of the conference's Organizing Committee, Scientific Advisory Committee and Secretariat. All helped to make the First European Conference on Research in Rehabilitation a resounding success, both socially and scientifically.

Publication of this selection of conference papers may be a final link in a long chain of enterprise and collaborative endeavour, but it too has benefitted from encouragement, support and assistance from many quarters. In particular we are indebted to Professor Cairns Aitken of the Rehabilitation Studies Unit, University of Edinburgh and to Dr William Frey of the University Center for International Rehabilitation, Michigan State University for their encouragement to proceed with the editorial task. In addition, our work could not have been undertaken without generous support from the Accident Offices Association, the Lothian Health Board and the University Center for International Rehabilitation. That support is also gratefully acknowledged. Finally we wish to acknowledge secretarial contributions by Frances Kellagher and Elaine Grieve, and to pay a special tribute to our colleague Hugh Bochel, whose advice on, and technical assistance with, the production of this volume have been invaluable.

P.C. and J.H.

Rehabilitation Studies Unit
University of Edinburgh

April 1985

PART I

WORK AND DISABILITY

Work and disability

Editorial commentary

When vocational rehabilitation policies and services were first introduced, it was assumed that most citizens who wished to enter or re-enter employment following illness or injury would not require any specialised assistance to enable them to do so beyond the practical help or assistance that employers might give. In most countries, therefore, only a minority of people with disabilities were expected to be referred to vocational rehabilitation services for such purposes as occupational assessment or work evaluation, vocational guidance or counselling, training or retraining, or placement either in the open labour market or in sheltered employment. While, generally, that expectation has proved to be correct, it has not been reflected in vocational rehabilitation literature over the years, where the emphasis has been on official policies and programmes and, hence, on the (mostly) unemployed clientele of government-funded services. Consequently, the wider experience of people with disabilities in the labour market as a whole and employers' practices in areas such as recruitment of disabled employees or management of disability in the work place have been comparatively neglected topics.

Lack of attention to these wider dimensions may explain why comprehensive models of the operation of the labour market for people with disabilities have yet to be developed. It is essential for the development of more effective policies and services that more detailed information is obtained on those people with disabilities who are employed and the types of work they undertake, and that more accurate estimates be made of the number of people with disabilities who are unemployed. In similar fashion, knowledge about the management of disability at work would be increased greatly if more attention was paid to employers' practices; employees' requirements for job redesign, aids to employment and adaptations to equipment and premises; and the experience of those people with disabilities who have obtained and/or retained employment without recourse to vocational rehabilitation services. This information might suggest effective solutions to practical problems which could serve as models for wider adoption.

Some steps have of course been taken recently to provide such information. Surveys in Great Britain (Townsend, 1979) and the United States (Bowe, 1983) have yielded estimates of the number of people with disabilities in these countries who are available for employment and the proportion who actually have jobs. Examples of a more practical nature include the early management of disability programmes which have been implemented in Finland (Jarvikoski, 1980) and the burgeoning corporate disability prevention and rehabilitation programmes in the United States (Galvin, 1983). Elsewhere, Swedish workers have provided guidance on the adaptation of work sites for people with disabilities entering selected occupations (Elmfeldt et al, 1981); German ergonomists are developing systems to assist the placement of disabled workers into jobs that are appropriate to their residual skills and abilities (North, 1980); and British officials have promulgated a *Code of Good Practice on the Employment of Disabled People* for the guidance of employers (Manpower Services Commission, 1984). This shift in emphasis away from vocational rehabilitation services to the various settings in which people with disabilities have succeeded in obtaining or retaining employment, and the ways in which employers and co-workers can help to achieve these objectives, is reflected in the first section of this book.

Walker's report of practices at Scottish Gas (Chapter One) draws attention to procedures followed by many British companies to review the employability of employees who acquire disabilities during their employment and, where possible, to retain their services. In Great Britain, such practices are quite common and, in some cases, very well established. Companies like Vauxhall Motors and Pilkingtons, the glass manufacturers, introduced model rehabilitation programmes for their employees in the mid-1940s. They represent two of the better known examples of British industry's more general response to the post-war government's expectation that employers had the leading role to play in promoting employment opportunities for people with disabilities. Walker's account of personnel and occupational health decision making procedures in one major industry illustrates that this tradition has been kept alive over the intervening 40 years. But this does not mean that there is not scope to enhance employers' achievements in retaining the services of those who become disabled while in their employ. The main objective of the new code of good practice, which has been formally endorsed by both the Confederation of British Industry and the Trades Union Congress, is to encourage and assist employers to achieve even higher standards.

One reason for continuing concern over the employment of people with disabilities is the evidence that neither official vocational rehabilitation policies and services nor employers' practices have succeeded in reducing the gap between the proportion of disabled people of working age who are unemployed and the proportion of their non-disabled counterparts who are out of work. Kettle's research (Chapter Two) sheds some new light, at least from a British perspective, on an explanation that the disabled lobby has often advanced for the present state of affairs. It is that recruitment and selection procedures may discriminate unfairly against people with disabilities. It is claimed that reliance is placed on generally unfavourable assumptions about the safety, time keeping and sickness absence records of disabled workers and that attention is focused on disability rather than residual skills and abilities.

The results of Kettle's analysis of reported accidents in six organizations, three in each of the public and private sectors, are consistent with findings from other countries in showing that disabled employees' safety records are certainly no worse, and in some instances are better, than those of their non-disabled co-workers. On the other hand, attendance records of people with disabilities were not quite as good. However, this difference for all disabled employees in the six organisations masks variations between those with fairly stable disabilities, whose attendance records were as good as or better than non-disabled employees, and some employees with age-related impairments or with neurotic disorders whose attendance records revealed proportionately higher rates of absenteeism than might be expected from their actual number in the work forces studied. This might suggest that employees with progressive, degenerative or neurotic disorders are those who are more vulnerable to dismissal and who should therefore be singled out for special attention in disability management programmes.

Although incidental to the main purposes of their enquiries, both Walker's and Kettle's studies break new ground in providing estimates of the proportion of people with disabilities in British work forces. Seven per cent of Scottish Gas employees were judged by trained occupational health staff to have disabilities which were expected to last for a year or more and which were so severe that they could be expected to handicap the individuals concerned if they were obliged to seek alternative employment appropriate to their qualifications and experience. Kettle's figures, based on personnel department assessments of the number of employees with disabilities that would qualify them to register as disabled persons in the work forces of the six organizations he studied, range around this level, averaging 9 per cent. These percentages are much higher than those for registered disabled persons, whose employment would be reported in official returns from the organizations concerned declaring their level of compliance with the legal obligation on all British employers with a work force of more than 20 people to observe a quota of 3 per cent registered disabled persons, unless they have been issued with an official permit excluding them from their obligation.

If these results are typical, it is possible that British employers' level of achievement in recruiting and/or retaining the services of people with disabilities may have been underestimated. Higher than expected proportions of people with disabilities in work, particularly in the private sector, may also hold implications for those who advocate retention of a quota scheme as an integral aspect of policy on the employment of disabled people. For example, the reader may wish to consider the fairness of the requirements to register when so many employees who elect not to do so are excluded from quota compliance returns. However, if quotas are to be retained, taking both registered and unregistered disabled people into consideration prompts questions about the most appropriate level at which to set a quota. In view of the evidence from these two studies, it is arguable that the levels set in the Federal Republic of Germany and Portugal, at 6 per cent and 10 per cent respectively, might represent more realistic targets, given the number of people with disabilities eligible for consideration. Alternatively, because every person with an impairment or disability does not have difficulty in obtaining or keeping employment, and because quota schemes are intended primarily to combat employment handicap, another option would be to set or retain lower quotas with different eligibility criteria. In contrast with our current reliance on the presence of known impairments or disabilities, these could be based on such identifiable aspects of handicap as time out of work during which a disabled person has been available for and actively seeking employment that is in keeping with his or her residual capacity.

The next two chapters focus attention on ergonomists' contributions to the management of disability in the work place and hence on the practical assistance that increasingly is being made available to employers. Whalley and Watson (Chapter Three) describe work carried out in co-operation with the British Steel Corporation to apply techniques of assessment and job analysis to the task of matching disabled employees to vacancies that are commensurate with their residual skills and abilities. Hartenbach, Laurig and Wieland's research and development programme (Chapter Four) goes beyond the principle of matching. Their work is more concerned with work site layout and its potential for redesign, with or without aids to employment or other adaptations to equipment and premises, in order to accommodate employees with known disabilities.

These complementary approaches are examples of a range of similar systems, whose practical nature should help to ensure their increased application in disability management programmes. However, it would be incorrect to expect them to solve all problems in this sphere. In discussion, conference participants drew attention to three broader issues which might limit their potential applications. Firstly, because these approaches are focused on the work site, they cannot be expected to deal with aspects of employment handicap which are not associated with either work site layout or the nature of the work to be done. For example, employees or prospective employees with mobility problems which might hinder or prevent travel to or from work or access to their work station would not necessarily be helped by these ergonomic systems. Secondly, the automation of much unskilled and semi-skilled work may result in the application of ergonomic systems to a more limited range of skilled occupations, especially in circumstances in which the cost of recruitment and training a non-disabled replacement may outweigh those of retaining and accommodating an experienced disabled employee. Thirdly, it needs to be recognised that systems like those developed by Whalley and Watson and by Hartenbach and his co-workers do not offer once-and-for-all solutions. Dramatic transformations are taking place not only in the nature of work and attitudes to work but also in the types of job available. The success of ergonomic systems will depend on constant updating to ensure their continuing applicability in a changing labour market.

Change, at least within the member states of the European Economic Community, was another major theme of conference discussions. It was raised in an opening statement to a workshop on employment by Patrick Daunt, Head of the EEC's Bureau for Action in Favour of Handicapped People. Daunt described the background to the EEC programme to promote social integration of people with disabilities, its objectives and structure, the contribution of the European Social Fund, and the importance that was attached to employment as a key element in the programme. He also described steps that have been taken to date in order to achieve these objectives, including the commissioning of relevant research. One of the exercises was a review of the employment situation in member states and its perceived implications for people with disabilities.

This particular study was undertaken by Mary Croxen and is reported in Chapter Five. Her work draws together evidence on the effects of recession and related high levels of structural unemployment throughout the EEC on employment opportunities for the disabled. The study highlights differences between member states in legislation and policy as well as in practice. Nevertheless, disabled citizens in all the countries she studied were found to be disadvantaged in comparison with their non-disabled peers. In Croxen's view, new measures to deal with the problem should include anti-discrimination legislation to assist disabled jobseekers and a much more conscious effort to make special provision for people with disabilities in all new national policies and programmes designed to combat the contracting labour market. Croxen's views therefore take us to the threshhold of tomorrow's world. At a time when wide scale structural unemployment in many industrial societies is coinciding with a technological revolution which may alter the distribution of occupations and the nature, availability, organization and meaning of work, it may be appropriate to give serious consideration to the topic of the future of work for people with disabilities.

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P.C. and J.H.

ONE

Disability in a large public sector work force

D Douglas Walker

Scottish Gas, Edinburgh

Introduction

In considering employment and disability, the main emphasis in Great Britain has always been on obtaining employment for disabled persons and on ways of encouraging industries to achieve the quota of 3 per cent Registered Disabled Persons in their work force, as required under the *Disabled Persons (Employment) Act*, 1944. Little attention has been paid in the past to the disabled people who are in employment, although the Manpower Services Commission's review of the Quota Scheme for the employment of disabled people (MSC, 1981) placed considerable emphasis on this aspect in their suggested policy. The MSC review also recognised that the Quota Scheme does not accurately reflect the numbers of disabled persons in employment.

In this chapter, I shall report a study in which the extent of disability in employees of the Scottish Region of the British Gas Corporation was assessed in the following ways. Firstly, the broad causes of disability noted at the date of starting employment were compared with those developing while in employment. Secondly, as Scottish Gas employees are classified into staff and manual grades, the opportunity was taken to compare and contrast the levels of disability, and the requirements for modification of work or redeployment in those who developed disability while employed by Scottish Gas in these grades. Thirdly, the number of staff and manual grades who required to be retired on medical grounds were also examined together with the reasons for these retirements.

Materials and methods

Medical records are kept for all Scottish Gas employees. In December, 1982, six Nursing Officers examined the medical records of all employees for disabilities which were known to be present in 1982, and were considered likely to last 12 months or more. The disability had to be sufficiently severe for the

Nursing Officers to consider that it would have handicapped the person in obtaining employment appropriate to his qualifications or experience, compared with someone of the same age and sex without such a disability. Five of the six nurses examined approximately equal numbers of records of staff and manual grades.

Results

Prevalence of disability

Table 1:1 shows the prevalence of disability in male and female staff grades and in manual grades (who are virtually all male). In the staff grades, there were more disabled male employees than female (9.0 per cent compared with 6.2 per cent) and when the sexes were combined the prevalence was 7.9 per cent compared with 6.3 per cent among manual grades. The overall prevalence for staff and manual grades combined was 7.2 per cent.

Table 1:1 Percentage of employees with disability in staff and manual grades

Grade	No. at risk	No. disabled	Percentage disabled
Staff (males)	2,446	220	9.0
Staff (female)	1,572	98	6.2
Manual (males)	2,959	187	6.3
Subtotal (staff)	4,018	318	7.9
Subtotal (males)	5,405	407	7.5
Total (all grades)	6,977	505	7.2

When the prevalence of disability was examined in relation to its presence before or after joining the industry (Table 1:2), 118 out of 318 disabled staff employees (37 per cent) were found to have had their disability on starting work, compared with 48 out of 187 (25 per cent) disabled manual grade employees. Thus 63 per cent of the staff, and 75 per cent of the manual workers developed their disability while in employment.

Table 1:2 Onset of disability before or after recruitment

Grade	Onset before recruitment N	Onset before recruitment %	Onset after recruitment N	Onset after recruitment %	Before/after ratio
Staff	118	37	200	63	1:1.7
Manual	48	26	139	74	1:2.9
All grades	166	33	339	67	1:2.0

Modification of work

The need for temporary or permanent modification of work for those developing disability in employment was also studied (Table 1:3). Seven and a half per cent disabled staff (15/200) and 15 per cent of disabled manual workers (21/139) required temporary modification of their work, while 8 per cent of the former group (16) and 21 per cent of the latter group (29) required their jobs to be permanently modified in some way.

Table 1:3 Requirements for job modification or redeployment among those who became disabled after recruitment

Grade	No. disabled	Temporary modification N	Temporary modification %	Permanent modification N	Permanent modification %	Redeployment N	Redeployment %
Staff	200	15	8	16	8	8	4
Manual	139	21	15	29	21	16	12
All grades	339	36	11	45	13	24	7

The numbers of staff and manual workers who required to be redeployed on account of their disability is also shown in Table 1:3. Only 8 out of 200 (4 per cent) staff had to be redeployed compared with 16 out of 139 (11.5 per cent) of the manual grades.

Causes of disablement

The broad causes of disability in manual workers, noted before and after joining the industry, are shown in Table 1:4. The main causes of disability noted before commencing employment were due to visual defects (almost exclusively monocular vision), and these accounted for 41 per cent (20/48) of the defects noted. When disability arising after joining the industry is considered, the major causes are locomotor (including back conditions), which account for 41 per cent of the disabilities (57/139) and cardiac conditions which account for a further 25 per cent (35/139).

Table 1:4 Causes of disability in manual workers with onset before and after recruitment

Disability	Onset before recruitment	Onset after recruitment	Total
Cardio-vascular		35	35
Respiratory	8	11	19
Gastro-intestinal		10	10
Locomotor	8	33	41
Back		24	24
Visual (monocular)	19	1	20
Visual (other)	1		1
Deafness	6		6
Epilepsy	1	11	2
Psychiatric		3	3
Other	5	11	16
Total	48	139	187

Retirals on health grounds

Table 1:5 shows the number of retirals on health grounds for staff and

manual groups over a three year period, according to the age at which retiral took place. The number of retirals of male and female staff (a total of 21) can be compared with 23 retirals among the manual workers' group. The majority (54 per cent) of retirals (staff and manual grades combined) occurred in the 50-59 years age group, (24/44), and 34 per cent took place in the 60 years or older age group (15/44).

Table 1:5 Grade, sex and age of employees retiring on health grounds (1980-1982)

Age group (years)	Staff		Manual		All
	Male	Female	Male	Female	grades
Under 30					
30-39			2		2
40-49		2	1		3
50-59	10	4	9*	1	24
60+	5		10*		15
Average number at risk	2,446	1,572	2,959	23	7,000
Prevalence rate**	6	4	7		6

*Includes 2 employees who were considered fit for alternative employment but no suitable work was available

**Number of retirals per 1000 employees at risk

The ratio of retirals to average population at risk (x 1,000) shows that, amongst staff grades, more males retire than females, while manual workers are only slightly more likely to retire on health grounds, compared with male staff.

The broad causes of retiral on health grounds, for staff and manual grades, are shown in Table 1:6. The main causes of retirals of staff were cardiovascular conditions, which accounted for 43 per cent (9/21) of all retirals, while such conditions accounted for 45 per cent of the main causes of retiral in manual grades (20/44).

Table 1:6 Reasons for retiral on health grounds (1980-82)

Disability	Staff	Manual	All grades
Cardio-vascular	9	11	20
Respiratory	2	1	3
Neurological	5	3	8
Locomotor		2	2
Back		1	1
Visual	1	2	3
Psychiatric		1	1
Cancer	3	2	5
Other	1		1
Total	21	23	44

Discussion

This study confirms that the number of Registered Disabled Persons is not an accurate reflection of the number of disabled persons within a major industry. Although only 1 per cent of the work force of Scottish Gas are officially registered as disabled persons, the overall prevalence of disability in all employees, at 7.2 per cent, is very much higher.

Approximately one third of these employees were known to have a disability on joining the industry, which reflects the progressive approach the industry adopts to employing disabled people. However, two-thirds of the disabled group developed their disability while in employment, thus emphasising the importance of considering this aspect also.

The majority who developed a disability were able to resume their normal occupation but the proportion who required permanent modification of their work was not inconsiderable, and this was particularly true for the manual grades (21 per cent compared with 8 per cent of the disabled staff members). The greater problem which disability presents to manual employees is also reflected in the proportion who required to be redeployed. Almost three times as many disabled manual employees required to be redeployed, compared with disabled staff grades (11.5 per cent compared with 4 per cent).

When the causes of disabilities noted before and after joining the industry are compared, the conditions known beforehand were, relatively speaking, less severe than those which developed while in employment, as shown by the proportion who required permanent modification of their jobs, or redeployment to other jobs. In manual workers, cardiac and locomotor problems (including back trouble) were the main causes of disability developing while in employment. This chapter does not attempt to identify the contribution of age, occupation, social class etc., to the development of these conditions.

It is gratifying that so few of the Scottish Gas employees with disability required to be retired on health grounds over the period 1980-82, as is the fact that manual workers were only at a slight disadvantage in this respect compared to their staff colleagues. Those who were retired on health grounds were almost exclusively in the oldest age group, and almost all were considered unfit for alternative employment. The prevention of retirals on health grounds reflects the willingness of the industry to modify work or redeploy to alternative work where disability prevents an employee from working normally.

The problems of permanent modification of work or redeployment are considerable, both to the affected employee and the management. For the employee, these problems include loss of earnings, loss of status, limited promotion prospects and, in the case of redeployment, the pressures of adapting to a new role. For management, modification of work seriously interferes with the job flexibility which is an increasingly important facet of modern industry. Redeployment presents problems too. Other departments are understandably reluctant to accept someone with a known disability who may have been off work for a prolonged period, and the availability of suitable alternative jobs is very limited. Furthermore, it is often difficult (particularly in the case of manual workers) to assess the potential for alternative work in those who develop disability in employment.

In this respect, Scottish Gas has from time to time made use of existing medical and occupational rehabilitation centres throughout Scotland. However, industry in general does not make sufficient use of these facilities. Very few of those who attend Employment Rehabilitation Centres for example are disabled people who are still in employment. It may well be that more productive use could be made of the excellent facilities at these centres if more referrals came from this category of workers.

It is self evident but nevertheless worth repeating that if more disabled people are retained in employment then fewer will need to obtain employment. The effort to keep disabled employees at work, however, should not be the sole responsibility of the employer. There is a need for greater mutual co-operation between all agencies concerned with the employment and care of the disabled people to try to ensure that they maintain employment.

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TWO

The accidents and absence of disabled people at work

Melvyn Kettle

Applied Psychology Department, University of Aston in Birmingham

Introduction

Many studies have examined the performance of disabled people at work, a number of which have been reviewed by Kettle (1979). A common conclusion of these studies was that the accident and absence rates of disabled workers were certainly no worse than the rates of able-bodied workers and, indeed, they were very often appreciably lower. However, the findings of these studies related mainly to the experience of employers in the United States and it cannot be gainsaid that there is a dearth of comparable research in the United Kingdom with which British employers can identify. It was to remedy this situation, at least in part, that the Health and Safety Executive commissioned the study on which this chapter is based.

Methodology

Operational definitions

It was decided to utilise the definition of a disabled person given by the *Disabled Persons (Employment) Act*, 1944 - not because this definition is particularly good but because it is one with which employers and industrial medical staff are very familiar. It should be noted, however, that those disabled people who were identified included not only those who were actually registered under the 1944 Act but also those who, in the opinion of those making the identification, could have registered had they so wished.

The selection of companies

Arrangements were made with six employers in the West Midlands - three *within the private sector and three Head Post Offices.* These employers encompassed a broad spectrum of activity from medium engineering to food production in the private sector to a service industry in the public sector. To preserve anonymity reference will be made to Company A, B, and C and to Post Office A, B, and C.

The identification of disabled workers

Company medical and/or personnel staff were requested to undertake a sorting operation of the medical records of all employees in order to identify both registered and unregistered disabled people. It is important to emphasise that the identification of unregistered disabled workers was made according to the definition given by the *Disabled Persons (Employment) Act*, 1944 for the purposes of registration as a disabled person - namely, one who "on account of injury, disease, or congenital deformity, is substantially handicapped in obtaining or keeping employment, or in undertaking work on his own account of a kind which apart from that injury, disease, or deformity would be suited to his age, experience, and qualification". Thus, the unregistered and registered disabled workers should not be regarded as separate groups but as one group of disabled workers.

Due to the relatively short time available for data collection and analysis, it was only possible to concentrate on a single year (1980).

The categorisation of disabilities

It was decided to categorise disabilities under broad headings rather than specific diagnostic labels. After consultation with the Employment Medical Advisory Service. To repeat the point made earlier, the decision to include an individual on the list of disabled people rested on the presence of a recognisable disease, ailment or syndrome that had allowed, or would allow, the individual to register as a disabled person.

The occupations of disabled workers

Rather than use job titles (which have different meanings in different companies), a series of rather more general job descriptors was used.

Examination of accident records

The categories chosen for causes of accidents were based on those used in the annual reports of HM Chief Inspector of Factories.

It was not always easy to categorise an accident as having a single cause. To illustrate, a worker may have cut his hand on the sharp edge of a piece of metal during the act of lifting it. Here, the cause of the accident was clearly a combination of two factors - a sharp edge and handling - and logically the accident could have been placed in either category. To simplify the problem, the general rule was adopted that an accident would be classified according to the first-named cause. Thus, to take the above example, if the accident had been recorded as a laceration caused by a sharp edge whilst lifting a piece of metal, it would have been placed into the 'metal rags/sharp edges' category. Alternatively, had the cause been given as a laceration caused by lifting a piece of metal which had a sharp edge, the category would have been 'handling goods'. (In analysing the accidents no attempt was made to differentiate between an agent of injury, such as a sharp edge, or an event, such as a fall. For convenience of analysis, both were subsumed under the general heading of cause).

The analysis of accidents permitted those accidents sustained by disabled workers to be identified and expressed as a percentage of all accidents. This percentage was then compared to the percentage of the work force who had been identified as disabled.

Examination of absence records

Unlike the examination of accident records, it was not feasible to examine the absence records of every employee simply because this would have involved an enormous amount of work requiring far more time than was available. Therefore, only the absence records of the identified disabled workers were examined and details taken of their certificated and non-certificated absence for each month of 1980 (excluding holiday leave and rest days). Where absence of part of a day had been recoded this was rounded up to the nearest half-day, and care was taken to record only those days of absence that were recognised by the company as days of absence.

In order to obtain an estimate of the relative absence rate of disabled employees, the same approach was utilised as for the determination of their relative accident rate. The absence of disabled workers was expressed as a percentage of the total absence for the company and then compared to the percentage of the work force identified as disabled.

Results

The prevalence of disability

Out of a total work force of 33,622, 3,028 disabled employees (2,672 males, 356 females) were identified as being employed by the companies in 1980. The number for each company is given in Table 2:1. Whilst no guarantee can be given that these numbers include all disabled workers, company staff involved in the identification exercise considered that at last 90-95 per cent of the total number of disabled people working for the company had been identified.

Table 2:1 Number of disabled workers in each company and Post Office

	Company			Post Office		
	A*	B	C	A	B	C
Male	1250	265	1010	42	42	61
Female	44	156	154			2
Total	1294	421	1164	42	44	63
Percentage of disabled workers in work force*	8.7	5.8	18.7	3.0	2.6	3.0

*Weekly paid staff only

The occupations of disabled workers

There is a great deal of truth in the statement that, no matter what the job, it is possible to find a disabled person doing it. This certainly applied in this study where disabled workers were to be found in all occupations. Indeed, although every company had arrangements for finding a disabled worker alternative work should a disability begin to interfere significantly with his or her ability to do a particular job, there were no special provisions for 'sheltered work'. The only small exception occurred within the post offices where there were arrangements for disabled postmen unable to cope with the rigours of the postal delivery walks to be assigned to light duties. In effect, this meant that they did all the other duties of a postman, such as sorting the mail, but were excused actual mail delivery. However, it should be noted that at Post Office A, of 28 disabled postmen, only 13 were on light duties; at Post Office B, of 33 disabled postmen, 16 were on light duties; and at Post Office C, of 44 disabled postmen, only 8 were on light duties. In other words, being disabled did not lead automatically to a transfer to lighter work. Within the private sector companies, disabled people working within a particular occupation were expected to do the same sort of work as their non-disabled colleagues.

A general comparison between the distribution of able-bodied workers and disabled workers relative to occupational groups is shown in Table 2:2. It will be noted that the distribution of the occupations of disabled workers broadly mirrors that for the occupations of able-bodied workers, although there is a tendency for disabled workers to be over-represented in the more sedentary occupations and under-represented in the more active or more technical occupations. Also, while disabled workers were to be found in supervisory grades, they were less well represented in management grades.

The accidents of disabled workers

In total, 31,407 accidents were analysed. This was equivalent to about 0.9 accidents per employee within the participating companies. Looking at the causes of accidents (Table 2:3), it is clear that within the three manufacturing companies the most common causes of accidents were stepping on or striking against objects and handling goods. In the post offices, however, falls on the same level and injuries inflicted by animals were the most common causes.

Table 2:4 reports the number of accidents sustained by able-bodied and disabled workers. To take each company in turn, 5.7 per cent of the accidents that occurred at Company A during 1980 involved workers identified as disabled. But, as reference to Table 2:1 will show, these workers constituted 8.7 per cent of the work force. Thus, bearing in mind that disabled workers were to be found in all occupations within the company, it can be said that, as a group, they had fewer accidents than their numbers would have indicated. The same arguments pertain both to Company C, where disabled workers, comprising 18.5 per cent of the work force, sustained 16.1 per cent of the accidents and, to a lesser extent, to Company B where the disabled workers, 5.8 per cent of the work force, sustained 5 per cent of the accidents.

Within the post offices the situation was, in general, repeated. At Post Office B and Post Office C, 2.6 per cent and 3 per cent of the work force, respectively, had 0.5 per cent and 1.6 per cent of the accidents. But, at Post Office A, the 3 per cent of the work force who were disabled accounted for 4 per cent of the accidents.

Overall, if the numbers of disabled workers for each company are combined and expressed as a percentage of the total work force, then 9 per cent of all the workers within the organizations included in this study were identified by their employers as being disabled. These workers sustained 7.4 per cent of all the accidents recorded by the companies. The study therefore produced no evidence that disabled workers were any more likely to have accidents than their non-disabled counterparts.

The absence of disabled workers

The rate of absence of disabled workers was determined by recording the

Table 2:2 Occupations of able-bodied and disabled workers

PRIVATE SECTOR COMPANIES

Occupational group	Percentage of total workforce A	B	C	Percentage of disabled workforce A	B	C
Unskilled manual	26.3		5.9	32.1		7.0
Semi-skilled manual		50.2	8.6		63.6	11.2
Skilled manual	39.7		35.2	40.7		34.9
Skilled technical	6.8	2.4	24.8	13.0	4.5	21.4
Ancillary	4.7	13.9	5.6	8.2	14.3	6.5
Clerical	12.4	17.1	10.7	4.6	13.8	10.8
Supervisory	4.0	0.1	6.5	1.3		5.1
Management	6.2	16.3	2.6		3.8	2.4
Unknown						0.6

POST OFFICES

Occupational group	Percentage of total workforce A	B	C	Percentage of disabled workforce A	B	C
Basic grade postman	53.2	55.9	59.1	35.7	65.9	61.9
Higher grade postman	10.4	11.5	7.2	31.0	9.1	7.9
Auxilliary postal work	12.7	9.9	12.4	4.8		
Ancillary work	3.8	5.3	3.7	7.1	13.6	6.4
Catering	0.8	0.8	0.8			
Clerical	12.1	10.1	10.7	21.4	4.5	15.9
Supervisory	5.6	6.4	5.9		6.8	7.9
Management	1.4	0.2	0.3			

Table 2:3 Causes of accidents in each company and Post Office

Cause	Company			Post Office		
	A	B	C	A	B	C
Machinery	3.3	3.0	9.6			
Vehicle	0.5	3.0	0.2	4.0	10.8	1.6
Falls (one level to another)	2.3	5.4	1.3	8.0	11.8	12.2
Falls (same level)	2.1	10.8	1.2	22.4	20.2	29.1
Stepping on or striking objects	36.6	21.1	15.1	14.4	12.8	21.7
Handling goods	15.6	26.2	17.7	9.0	10.3	13.0
Struck by falling or swinging objects	4.5	10.1	3.7	12.4	6.4	2.8
Welding, brazing etc.	2.2	0.1				
Hot surfaces, steam, hot liquids	2.5	7.5	3.0	1.0	1.0	0.8
Electricity		0.2	0.1			
Poisoning, gassing, fumes		1.5	0.3			

Corrosive substances	2.4	1.1	1.8			
Hand tools	7.7	4.5	9.5	1.0	1.0	1.2
Animals				27.4	25.1	15.4
Metal rags and sharp edges	4.7		16.6			
Swarf	4.3	0.1				
		12.2				
Atmospheric dust	6.8	2.5	1.6	0.5	0.5	0.4
Machine dust or sparks	2.2	1.5	4.0			0.4
Other causes	2.3	1.5	1.3		0.5	1.6
Total (per cent)	100	100.1	100.1	100.1	100	100.2
Number of accidents						
a) known cause	20,041	2,301	7,041	201	203	254
b) unknown cause	853	28	484	1		
Total (number)	20,894	2,329	7,525	202	203	254

Table 2:4 Accident rates for disabled and non-disabled workers

	Company			Post Office		
	A	B	C	A	B	C
Number of accidents reported	20,894	2,329	7,525	202	203	254
Percentage of accidents						
(non-disabled workers)	94.3	95.0	83.9	96.0	99.5	98.4
(disabled workers)	5.7	5.0	16.1	4.0	0.5	1.6
Percentage of disabled in workforce	8.7	5.8	18.5	3.0	2.6	3.0

relevant figures direct from their medical or personnel record cards. The absence for all disabled workers within an individual company was then expressed as a percentage of the absence sustained by the total work force. Results are given in Table 2:5. This shows that, for all the companies, the disabled work force as a whole sustained a higher level of absence than their actual numbers would suggest.

Table 2:5 Percentage of total absence sustained by disabled workers

COMPANIES

	A	B*	C
Total absence in man-hours	2,430,585	109,213	1,231,674
Total absence by disabled workers	356,768	7,746	291,992
Percentage absence by disabled workers	14.7	7.1	23.7
Percentage of disabled workers in work force	8.7	5.8	18.5

POST OFFICES

	A	B	C
Total absence in man-hours	126,227	212,875	162,800
Total absence by disabled workers	10,302	15,061	9,310
Percentage absence by disabled workers	8.2	7.1	5.7
Percentage of disabled workers in work force	3.0	2.6	3.0

*Statistics for company B are in man-days

At Company A the level of absence was higher by a factor of 1.7; at Company B by a factor of 1.2; at Company C by a factor of 1.3; and at Post Offices A, B and C by factors of 2.7, 2.7, and 1.9, respectively. While these figures suggest that disabled workers in general have more absence than non-disabled workers, the data on absence rates for workers with particular disabilities, reported in Table 2:6, suggests that the pattern was not the same for all groups of disabled workers. In fact, higher absence rates applied to a few, albeit important categories. It is of interest that, for the sample as a whole (and for individual

Table 2:6 Percentage absence sustained by specific disabilities

Impairment or disability	Percentage of absence by disabled workers	Percentage of work force disabled
Circulatory system	25.8	25.2
Amputations	0.7	1.1
Musculo-skeletal	4.5	3.9
Back conditions	7.5	7.2
Respiratory conditions	15.8	14.7
Arthritis or rheumatism	7.9	5.7
Abnormalities of limbs	7.6	7.7
Head injuries		0.1
Neurological conditions	0.7	1.0
Epilepsy	3.8	4.7
Visual defects	1.8	3.5
Hearing defects	0.9	1.2
Speech defects		0.1
Deaf and dumb	0.2	0.6
Diabetes	5.8	7.5
Digestive conditions	3.0	3.7
Skin conditions	1.5	1.9
Other physical conditions	6.3	5.0
Neuroses or psychoses	6.2	5.2
Total (per cent)	100	100
Number	95,533 (man-days absence)	3,028 (disabled workers)

companies), higher absence rates generally tended to be recorded for employees with histories of psychiatric problems or with such predominantly progressive and age-related impairments as arthritis or rheumatism, diseases or disorders of the respiratory or circulatory systems and musculoskeletal diseases or deformities, including back conditions. In contrast, generally lower rates of absence tended to be recorded for employees whose disabilities might be expected to be of a more stable nature. The latter would include those who have amputated limbs or sensory defects, as well as those with disorders which are normally controlled by appropriate medications such as epilepsy, diabetes or disorders of the digestive system.

Although disabled workers were to be found in all occupations, the effect that the nature of a company's work may have on the absence of workers - both disabled and non-disabled - should still be borne in mind. The obvious example in this study is Company B. In this company any complaint that a worker had which could have affected food production was obviously a matter of great concern. Hence a worker with a respiratory infection, however slight, was likely to be sent home - not because remaining at work would have aggravated the person's condition but because the company clearly could not have tolerated any possible risk of food contamination. If this applied to the able-bodied worker with a bad cold, say, then how much more must it have applied to those with chronic respiratory conditions such as bronchitis. Furthermore, it should be realised that the workers at Company B would themselves be very aware of the stringent standards set by the company. Thus should any person go down with a cold, he or she may stay away from work knowing full well that this would be the instruction from the company doctors. The point to note is that the same problem may not have caused the individual to be absent from some other company where the nature of the work was different.

A similar argument can be applied to the post offices where, because of the demands of a postman's job, any condition that is likely to interfere with mobility will probably give rise to absence. It is not surprising therefore to find that musculoskeletal disease, back conditions, and arthritis or rheumatism were among the more significant contributors to absence within the post offices. Once again, it is the interaction between the type of work and the disability that may be more responsible for absence that just the disability alone.

Discussion

Employers have long argued that just because their quota compliance figures may be below the required 3 per cent this does not mean that they do not or would not employ disabled people. The figures obtained in this study tend to support this point of view in that all the companies taking part identified more disabled people within the work force than would have appeared on their quota returns. Indeed, the three manufacturing companies exceeded the quota level by a factor of between two and six, and the post offices achieved levels fully commensurate with their statutory duty.

Disabled people were found in all sectors of a company's work force thus refuting assumptions that any particular disability automatically precludes particular forms of work. For example, people with circulatory diseases were found in quite strenuous occupations and people with epilepsy were employed as machine tool operators. In fact, apart from the post offices, where there were formal arrangements for reserving light work for those disabled postmen who became unable to fulfil the more physically demanding aspects of a postman's job, there was little evidence that disabled workers tended to be found in one occupation more than any other.

The findings of this research on the relative accident rates of disabled workers are very much in accord with the findings of other studies, and lend support to the view that, given an environment that takes note of the limitations, if any, imposed by disability, disabled workers in general are less likely than other workers to sustain accidents at work. The idea that a disabled worker represents a safety hazard receives no support from the experiences of the six employers in this study. Indeed, although the results of a retrospective study can never be accepted without some reservation, it is interesting that during the analysis of the 31,407 accidents, of which 2,482 were attributable to disabled workers, only five instances were found where reference was made, either explicitly or implicitly, to a disability being a likely contributory factor to the accident. Although it could be argued that this does not mean that there were only five such instances, it should also be pointed out that the very nature of the vast majority of accidents was such that there was no reason to link the accident with a disability. For example, accidents caused by stepping on or striking against objects, or by handling goods, or by being struck by objects accounted for a good proportion of the accidents in all companies. There is no reason whatsoever to link these causes with a disability. Even in cases of falls, where there might have been a link with a disabling condition, it must be emphasised that, in the description of the accidents, there was never a mention of a disability as being a causative factor.

For various reasons this study had to be carried out on a retrospective basis and suffers from the disadvantages that are inherent in such an approach. For example, it was not possible to resolve any ambiguities in the accident data and there was no opportunity to explore the reasons for absence. Also, because absence data and likely causative data, such as accident information, were kept in different ways, in different departments and maintained by different people, it was impossible to link absence with, say, accidents. It was also impossible to separate out that absence sustained by disabled workers which was attributable directly to their disability. Only absence figures in general were recorded and tentative conclusions drawn on the premiss that the proportion of a company's total absence sustained by disabled workers would be no more than their proportion of the total work force. This was the basis for the analysis of accidents (where every accident of all workers was studied), but the analysis of absence involved only that absence sustained by disabled workers. Therefore, the performance of disabled workers in the context of absence can only be inferred rather than calculated.

It was noted during the collection of absence data that a number of disabled people had been absent for the entire year under examination. In spite of this, these workers were still on the company's payroll. That they were suggested that this may be one very real cause of their proportionately higher levels of absence. Instead of retiring these workers on medical grounds, which would have had an immediate reducing effect upon the general disabled absence rates, the companies clearly exercised a more sympathetic policy. This sort of attitude is not unusual. Even though employers may sometimes appear reluctant to recruit disabled people they do tend to look after those of their employees who become disabled, especially after a long period of service. Thus, the fact that disabled employees seem to sustain rather higher absence rates than other workers may be something of a compliment to the companies employing them.

All disability groups do not have a higher than average absence rate. On the contrary, in this study many disabilities seem to have a lower than average absence rate. It would, of course, be foolish to argue that a disability may 'cause' lower absence in the same way that it may 'cause' higher absence. Even so, it is possible that, within the limitations imposed by a disability, many disabled workers consciously try to keep any absence from work to a minimum in order to try to avoid jeopardising their jobs.

Acknowledgement

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THREE

Employment rehabilitation of production workers in heavy industry

S P Whalley and H J Watson

Institute for Consumer Ergonomics, Loughborough University

Introduction

In recent years, the British Steel Corporation (BSC) has been concerned with the problems of employment rehabilitation in such a physically demanding industry and has invited the Institute for Consumer Ergonomics to assist in the development of rehabilitation policies. Scunthorpe Division in particular had a Rehabilitation Unit, attached to the Medical Centre, specifically to help employees return to work, but unfortunately the Unit was forced to close for economic reasons.

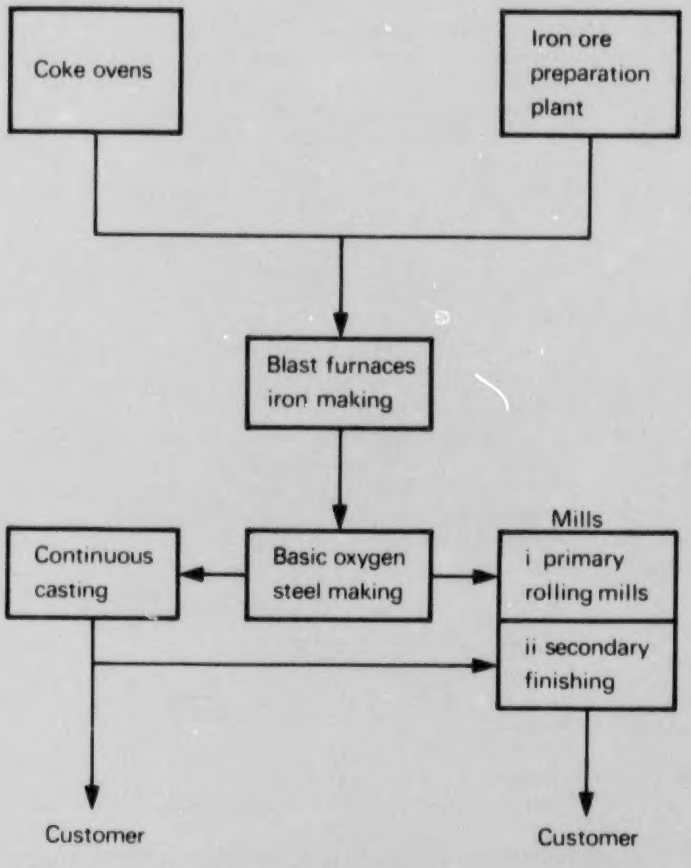
Scunthorpe Division of BSC is an integrated iron and steel works; steel cannot be produced without first producing iron and, on this site, both processes are undertaken as part of a continuous process. Figure 1 indicates the six main types of production area present at this Works. Additional back-up services are supplied by outside contractors and the Central Engineering Workshops who supplement Departmental Engineers.

Each area of plant undertakes a wide range of activities with many individual tasks but all include inspection/monitoring jobs, control operations and heavy manual work. The degree to which these are present varies from one area to another, and that is why it is so difficult to consider the industry as a whole.

When an employee has been sick or injured, the primary decision to pass him as fit to work rests with the General Practitioner who may be unaware of his patient's actual job requirements. Once passed as fit, the individual can return directly to his department or, if he has been absent for 9 weeks or more, he may be requested to see the Works Doctor. If the employee returns immediately to his department and cannot manage his original job, the Shift Manager or Foreman may give him less demanding work for a few weeks or, alternatively, send him to the Medical Centre. At the Medical Centre, a clinical assessment is undertaken. The Doctor may then make a decision based on his knowledge of the industry or, preferably, visit the department to look at the employee's current job and discuss any available alternatives with the Department Manager.

Difficulties occur mainly when the individual cannot cope with his normal

Figure 1 Scunthorpe works production flow


Coke ovens
Iron ore preparation plant
Blast furnaces iron making
Continuous casting
Basic oxygen steel making
Mills
i primary rolling mills
ii secondary finishing
Customer
Customer

work and no alternatives are available immediately. If this happens, he may be sent home until further recovery takes place or until a possible alternative job is found. Otherwise, the employee may be counselled for early retirement or voluntary redundancy. The choice of alternative work usually remains limited to the same department and sometimes even within promotion lines. This is due to the hierarchical nature of the corporate structure and the independence of separate departments which tends to inhibit communication concerning available jobs.

The reduction in the work force that has occurred in the last year, and the use of contractors, for example for cleaning work, means it is no longer possible to cope with employees who are unfit by giving them non-productive work or simply by having colleagues undertake their work in addition to their own. Thoughtful placement of returning employees is therefore required so that any disability does not prove a handicap.

It must be recognised that there is no clear division between those who are handicapped and those who are not. A handicap usually results from a mismatch between a person's residual ability and job requirements. Many examples could be cited where a particular disability is not a handicap in a particular job. In order to prevent mismatches, careful consideration must be given to matching job requirements to an individual's capabilities and limitations.

Aims

An initial project undertaken by members of the Institute for Consumer Ergonomics investigated the type of rehabilitation procedures used within the EEC and UK steel industries. This included a series of in-depth investigations covering the range of rehabilitation procedures available at seven BSC Works; a study tour of Belgium, West Germany and Holland and a survey of BSC employees at one works who had experienced a continuous period of sickness absence of at least 12 weeks. The survey of BSC employees was intended to discover if individuals experienced any difficulty when returning to work (Whittington et al., 1980).

This preliminary research showed that many different rehabilitation procedures were used rather than a standard method and that there were a number of common problems associated with rehabilitation. For example, BSC had not been aware of the types of disability experienced by their employees.

The existence of these problems led to the formulation of the following practical objectives:-

> Rehabilitation objectives should be stated clearly so that effective selection and referral policies could be devised.
>
> Record keeping systems should be improved so that any relevant information would be accessible.
>
> Closer liaison with employees during any sickness absence should be sought.
>
> The inflexible systems of resettlement, caused at least in part by a rigid seniority structure, lack of movement between departments and the practice of offering utility jobs as light work, should be improved.

It was agreed that all of these objectives could be met by developing a standard scheme for assessing the abilities of a returning employee so that alternative work could be identified if necessary. It was also agreed that any alternative work must be in the form of existing productive jobs, not menial secondary tasks, and that the decision concerning suitability must be based on a structured assessment of the individual and an assessment of the job in terms of its demands on a worker. In other words, jobs must be chosen to fit the capabilities of the employees.

The project

Rehabilitation schemes within the Scunthorpe works

In order to recommend a standard rehabilitation system for use by BSC, a number of potential methods and techniques were examined. These had to include the official schemes currently used at Scunthorpe as well as other techniques.

When the project team first arrived at Scunthorpe Works, they discovered that only the Bloom Billet Mill (a primary mill, rolling metal into bars of different cross section, ie. blooms and billets) had an official scheme operating to help the return to work of employees who had been off work for a long period of time (Watson, et al 1983). This was examined in detail and an attempt was made to find out why the scheme had not been taken up by other areas. Unfortunately, whilst the scheme was extremely valuable within the Bloom Billet Mill, it was too specific to be applied across the whole of Scunthorpe Works and at other steel works.

Examination of existing job analysis techniques

Five possible schemes for analysing jobs in the steel industry were identified and assessed to see if they could be applied to this problem (Watson and Whalley, 1983). These were the AET (Rohmert and Landau, 1979), including the AET supplement for the disabled (North, 1980); the ERTOMIS (Jochheim, 1981); the Physical Demands Job Analysis, or PDJA (Lytel and Botterbusch, 1981); the MAST system (Wilcock, 1979; 1982) and Les Profils de Poste - Regie Nationale Des Usines Renault (Renault, 1976). The principal criteria used for the assessment are presented in Figure 2.

Only the AET and the PDJA had been designed and validated for use in heavy industry (PDJA on dock workers and AET plus the supplement for the disabled on Steel workers). The other assessment schemes had either an inappropriate emphasis on the type of work considered or an inappropriate method of coding (eg the use of method- time-measurement norms which could not be devised by the project team for this industry).

The AET (plus supplement) and the PDJA were piloted within the Bloom Billet Mill but proved inadequate for the specific requirements of this project. Several difficulties were found. For instance, the PDJA contains inappropriate

Figure 2 Principal assessment criteria

1 Relevance to heavy industry

2 Suitability of items and level of coding

3 A systematic approach

4 Easy to use in terms of coding, updating and accessing information

5 Quick to complete

6 Validated

7 Requires only minimal training to use the system

8 Suggests appropriate method of person assessment to effect a match

items. Examples of such items included "Are floors of a smooth, non-slip material or covered in low-nap carpet?"; "Is there a water fountain no more than thirty six inches from the floor, or has a cup dispenser been provided?" and "Is there a public telephone in an accessible area?" Additionally, the level of coding, yes/no, gives inadequate information and no flexibility. For example, how would an item that is helpful in the job, but not vital, be coded?

In contrast, the AET involves five levels of coding and five different types of code (eg Duration Code, Importance Code, Special Code). Also some invariables are included and repetition of items occurs. This makes the whole job profile extremely time consuming to code and would require specialists to update the information rather than current BSC employees.

Examination of existing person assessment techniques

While the authors expected to find techniques already developed for several of the job assessment schemes, most schemes of this kind stated the need for assessing the person without providing a structured method of assessment. The AET, for example, establishes a person profile, but it is of limited content. Only 19 medical factors are considered with no levels of ability indicated. Additionally, there is no obvious method of matching this profile with a job profile since there is not a direct one-to-one match to job profile items. The MAST system includes more person assessment items and specified tests but these were inappropriate: MAST I and MAST II relied on person method-time-measurement norms when there are no developed 'norms' for steel workers. Due to the nature of the norms it was inappropriate to attempt to obtain any whilst so many jobs were under threat. MAST III person assessment, which relates well to MAST III job assessment, is really directed at a retraining situation. Therefore, person profiles are constantly reassessed rather than relying on single evaluations. The only other person assessment found was the ERTOMIS. This has a well structured person assessment, but the emphasis is towards activities of daily living which are difficult to relate to everyday job requirements in a steel industry.

Development of appropriate job assessment and person assessment techniques

As none of the systems examined proved to be appropriate, it was necessary to develop new techniques (to guarantee the overall aim of matching abilities to demands). Both person and job assessments were considered together.

The techniques developed by the authors resulted from their experience of piloting available systems; an emphasis on linking medical problems to the job items they may affect; and the perceived importance of compatibility, appropriateness and realism. (Compatibility was considered in terms of a direct link between the job assessment and the person assessment. Appropriateness was taken into consideration by including only those variable factors relevant to the steel industry and which related to an individual's capabilities. Realism was assessed in terms of the coding used and the length of time to complete). In other words, the developed techniques needed to stand up to all the criteria originally used to evaluate available assessments, as presented above in Figure 2. The main stages of development in producing alternative job assessment and person assessment techniques were the preparation of draft techniques; appraisal and piloting of these techniques; modification; piloting of modified versions and the preparation of final versions.

The job or 'activity' assessment

This consists of a booklet of 100 items that are considered hierarchically and fall into four main sections. Section A considers social aspects of a job which relate to an individual's return to work form so that, if possible, a similar type of job can be chosen (eg in terms of department, status or pay). Section B considers the work environment. Section C considers the type of equipment used or available. By far the longest section is Section D which considers work demands, both physical and intellectual. Apart from Section A which is uncoded, each section is coded identically with three levels of coding. The actual wording changes from item to item but the levels always relate to the following conceptual schema:-

Level 1 - Irrelevant
Level 2 - A requirement, but not essential
Level 3 - An essential requirement.

In order to minimise any coding problems, the booklet includes a written description of the coding levels for every item next to a box that can be ticked, if appropriate. Additionally, because of the extreme differences between jobs and job conditions in different areas of plant, plus the difficulties with direct measurement (eg of weights to be lifted), the job assessment does not quote actual figures for any levels. It is, however, the authors' opinion that, with three levels of coding identified descriptively, the coding will be as relevant as if figures were quoted.

The person or 'ability' assessment

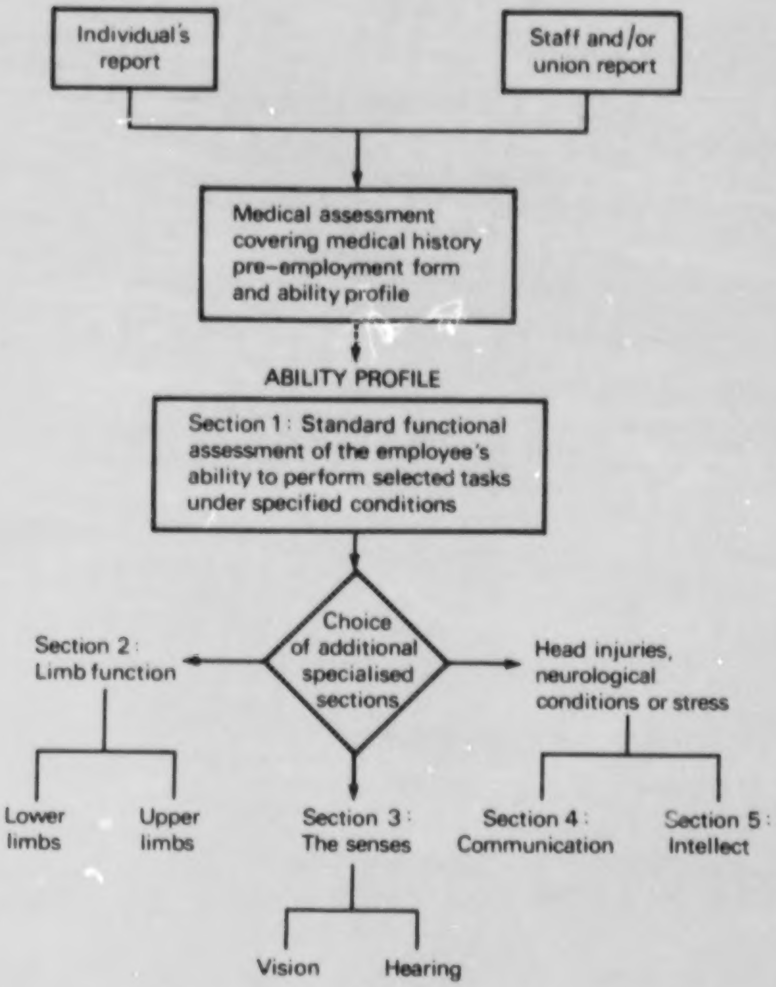
This incorporates information about the employee's medical condition and personality in the form of three inputs: firstly, an individual report/return-to-work form; secondly, a Foreman's and/or Trade Union report; and, thirdly, a medical asessment. These procedures are shown diagramatically in Figure 3. The recommended procedures are as follows. After a standard period of sickness absence, an employee should be contacted and given a return-to-work form. This form asks for current job details. These include job title, department, seniority, shift work, hours per week and hourly rate of pay. Additional questions identify opinions concerning an early return to work, acceptance of alternative work and a few personal preferences. This form is completed by the individual at home. In order to keep up-to-date with any change in the employee's condition or opinions, regular contact should be maintained throughout the period of absence.

Once an individual indicates that he is considering returning to work, a Foreman's and/or Trade Union report should be completed by the relevant representative at the Medical Centre. This report considers personality and normal job responsibilities.

The largest section of the 'ability' assessment is the medical input. For this it was considered essential to move away from a clinical diagnosis towards a functional assessment. The medical assessment is divided into five sections, with the first section completed for all returning employees and the other four sections considered only if a specific problem is indicated. The most sensitive sections are generally only considered if the employee has suffered a head injury or any neurological problem.

Medical personnel are expected to complete the medical assessment but because every British Steel Corporation works does not have a doctor, the techniques have been developed in such a way that physiotherapists or nursing staff could also complete the examination. This has been made possible by developing new medical assessment forms with an accompanying instruction manual. It is the instruction manual which distinguishes, for each item, the level at which an individual would be classified. The manual also suggests a

Figure 3 Flowchart of the proposed assessment procedure


Individual's report
Staff and/or union report
Medical assessment covering medical history pre-employment form and ability profile
ABILITY PROFILE
Section 1: Standard functional assessment of the employee's ability to perform selected tasks under specified conditions
Choice of additional specialised sections
Section 2: Limb function
Head injuries, neurological conditions or stress
Lower limbs
Upper limbs
Section 3: The senses
Section 4: Communication
Section 5: Intellect
Vision
Hearing

functional test to aid the decision, if a suitable one is available. As an additional prompt, where appropriate, there are diagrams of a person carrying out the specific test. Otherwise a column is left for notes. The idea is that the manual should be a working tool so that alternative tests can be added by the user.

Matching techniques: the 'Activity Matching Ability System'

Because of the manner in which both the job and the individual are assessed, it is possible to link the items together directly on a one-to-one basis. Therefore, if one item is a major requirement for the job, and the individual's ability report states that he is unable to function in the required manner, it would suggest that the individual may no longer be able to carry out his job. Conversely, if the only items an individual is assessed as being incapable of doing are not required in his specific job there is no problem with a return to work.

It is envisaged that the only feasible and realistic method of carrying out a job selection for a returning worker is by having all production grade jobs already categorised in terms of completed job description forms (as previously described). Then the person profile can immediately be compared with the individual's original job form and, if there are any problems, alternatives can be looked for.

At present the techniques are being assessed and only manual matching is taking place. However, it is proposed that, if implemented, the matching should be transferred to a computer to help quick, easy decision making. To make this possible, all production grade jobs at the plant (approximately 500) would have to have their requirements stored on individual records so that when a person profile is entered it can be compared with all the different jobs or with specific jobs. For example, it may be decided that the individual can only be considered for a return to work in his original department. If so, his profile would only be compared with job profiles in that area. The use of a computer would permit rapid selection of several alternatives that can then be discussed. If a solution is not apparent immediately, a further search can be undertaken after altering certain characteristics. For example, a very minor alteration of the work place may accommodate an individual. It must be remembered, however, that such a system allows a preliminary search for job possibilities. Further details may be required concerning the suitability of different types of job.

Evaluation of the suggested system

The job assessment technique was piloted originally within the Bloom Billet Mill and certain alterations were required before the present format was reached. The person input was developed in detail with medical staff at the Scunthorpe works.

The job assessment and the person assessment methods are being evaluated on plant at the moment with a sample of approximately 50 jobs and incumbents undergoing assessment in each area (ie approximately 50 pairs of assessments). This is to ensure that the techniques are applicable to all areas of the plant and that they encompass all types of medical condition.

At present it is only possible to attempt to assess and validate the two sides of the system but not the matching capabilities. Even to carry out this first step in evaluation, it was necessary to make certain assumptions - for example, that the individuals concerned were coping with their work successfully and that any condition shown by the medical records was currently affecting them in some way. Additionally, it was assumed that the individuals were representative and that their jobs were typical of all those available in the works. It is only when real matches are undertaken and assessed that an evaluation of the job selection capabilities of the system can be attempted.

In order to complete the evaluation, all the production jobs at the works must be assessed and their profiles stored, enabling a returning worker's profile to be compared with the job demands data so that a job can be selected. The success of the system may be evaluated qualitatively by examining how well the returning employee performs in his selected job. This cannot be measured objectively but relies on subjective assessment by staff and work colleagues. This final evaluation is only possible if the scheme is implemented within the steel works. It is envisaged that at the end of a such a trial period, the Activity Matching Ability System should be left in working order with BSC personnel who would, by that time, be capable of using the system and of updating the information on which it is based with a minimum of training.

Conclusions

An Activity Matching Ability System has been developed and is presently being evaluated. The indications are that the level of detail to which the jobs and individuals are described does result in a feasible technique to aid the rehabilitation of steel workers. This is only the first step in evaluation: the real test will come when the techniques are actually used to try to place employees back at work. The authors consider that such a system is a major requirement for any industry, regardless of its nature, both for the employees and the benefits it can bring to the specific industry. The practice of finding suitable jobs for individuals can be much more effective if a standard method is used.

The Activity Matching Ability System must still be properly tried and tested, but it does appear to offer a real potential for improving rehabilitation. Conceivably this system, although developed for the steel industry, could be used by other heavy industries after minor alterations.

Acknowledgements

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FOUR

Systematic work design for handicapped people

M Hartenbach, W Laurig and K Wieland

Institute of Work Physiology, University of Dortmund

Ergonomics and rehabilitation

The wide range of topics in the call for papers for the First European Conference on Research in Rehabilitation demonstrates that rehabilitation is a task for more than one science; it is a challenge for interdisciplinary treatment to meet medical, social, educational and vocational objectives.

An important task for vocational rehabilitation is to apply the ideas of engineering in response to the demands of medical rehabilitation. Ergonomic knowledge, gained through scientific research and practice, can be used generally to adapt work to human characteristics, which vary from person to person. Individual attributes of physically disabled people are often more variable than those of their non-disabled counterparts.

The following consideration of ways in which ergonomics can contribute to rehabilitation deals with two main aspects of vocational integration. One concerns the adaptation of work places with standard equipment, incorporating the requirements or capacities of physically disabled people. The other concerns the need for special provisions adapted to the individual abilities of disabled people.

Rehabilitation using ergonomics

Ergonomics offers three fields of application to rehabilitation. The first is selection of a suitable place of work which can enable the disabled person to carry out his work continuously. The second is work place design, using ergonomic knowledge to adapt the work place or the tasks to be undertaken in order to reduce the incidence of occupational handicap. The third area of application is in work instruction and training. Systematic instruction and training should aim to optimise the productivity of disabled people, helping them to achieve greater social and vocational equality.

As far as the problem of selection is concerned, two aspects have to be examined. These are describing the demands of the task or tasks to be undertaken and assessing the skills and abilities of the disabled worker. Comparison of these two elements reveals if a work place is suitable for the disabled person without modification or whether work place design is needed.

Work place design is, of course, the aspect in which ergonomists are most interested. The main problem is that of using technical work aids in order to overcome any disparity between the nature of the task to be undertaken and the disabled worker's residual skills and abilities. Before this can be attempted, some general questions have to be considered. One is "Is it possible to describe the demands of the task and, hence, what the disabled worker will be required to do?" Another line of preliminary investigation concerns the availability of a classification of technical work aids. Here, information linking the potential of specific technical aids to the requirements of particular tasks is most important, as is the more general question of devising a means of making such a classification readily available for easy, practical use.

A systematic approach to the solution of these problems has been devised by the authors, following consideration of the various problems involved. It comprises three main elements: a procedure for describing the demands of given tasks; a classification of technical work aids; and a system for the storage and retrieval of information on such aids.

The task analysis procedure (or 'work related systematics') is especially geared to physically disabled people. The main aspects of individual tasks analysed by the procedure are recorded in terms of their demands on body posture, body movement, limb movements and information input and communication.

The classification of technical work aids represents the ergonomic link between the aims of medical and vocational rehabilitation. It comprises a system for registering available technical work aids under a series of different headings.

Documentation on technical work aids already covers over 300 examples and will be updated as others are made available. Users of the task analysis procedure and classification will find that this reference source lists all the technical work aids that can be used in relation to particular problems.

An example of how to use the system

The following example shows how the system may be applied. Normally a blind person is unable to work as a data processor. But can such a handicap be overcome? Analysis of a data processor's task using task analysis procedures suggests that blindness need not be an obstacle to employment in this capacity if appropriate technical work aids are used. Possible aids are suggested by the classification, which groups such aids under four general headings, with a fifth group for very specific aids, as follows:-

1. Work aids to support body posture
2. Work aids for body movement and mobility

3. Work aids for disposition and handling
4. Work aids to assist communication and information processing
5. Special technical work aids

In the case of the blind person wishing to become a data processor the fourth group is the relevant one. The documentation on technical work aids further categorises aids to assist communication and information processing into six parts. These are:-

4.1 Reading and visual aids
4.2 Tactile and acoustic equipment for the blind
4.3 Linguistic communication aids
4.4 Writing and drawing aids
4.5 Text and data processing equipment for sighted individuals
4.6 Text and data processing equipment for the blind

In part 4.6 all text and data processing equipment available for use by blind people is listed according to broad ergonomic and structural criteria. Examples include:-

46.1 Braille typewriter recording instruments
46.2 Braille output units (dynamic)
46.3 Speech/voice output

From this list, experts can choose the technical work aid that is most appropriate to the case in question. Part 4.6 contains a total of 20 typical technical work aids. Each is registered under an individual code or grouping number, and the accompanying description provides information about its function, application/s, manufacturer and the names of producers of similar aids. In the case of a prospective, blind data processor, the relevant aid would be a braille output unit for use in a compact retrieval data processing system, to which the documentation currently includes 23 individual references.

Conclusion

The final selection of technical work aids or decision about work place design, should be made with special reference to a disabled person's intentions and wishes. Nevertheless, in many instances a disabled person either does not require aids or adaptations or requires only a minimum of special equipment. This is especially true where work places are already designed in accordance with standard ergonomic criteria. As previously mentioned, such criteria aim to adapt work to human characteristics by ensuring that proper attention is paid to the anthropometric and psychological aspects of work design and its information, safety and other environmental requirements.

FIVE

Employment and disability: a European perspective

Mary Croxen

Open University

Introduction and rationale

As part of the Commission of the European Communities' programme of work to promote the social integration of disabled people, I was invited to prepare the first of a series of three expert reports. This report dealt with the theme of 'employment', a topic which was to form the focus of detailed consultation and discussion during 1983. My particular task was to undertake research to establish a framework of key issues concerning employment and disability in the European Community; to review the available information on trends and policies in the field; and to identify further work that needed to be undertaken to provide a basis for the development of future policies.

The recent review of Research and Actions on the EEC Labour Market (EEC, 1980) concluded: "Research, of itself, can not solve policy problems. Well-defined research can, however, clear the ground for discussion, give a clearer definition to the problems faced and provide for the tentative evaluation of policies." My report for the EEC (Croxen, 1982) attempted to cover these three broad objectives in order to identify 'a framework of issues' for further study and analysis.

I will present my findings in each of these areas. It is worth remembering that the objective of this review was to assist in an administrative task, not an academic one, although the two are not necessarily mutually exclusive. It is also important to emphasise that the work was concerned with problems of employment and disability facing the Commission of the European Communities as a whole rather than the individual Member States.

Clearing the ground

Several quite common sources of potential conflict were identified which appeared to lead to ambiguity, misunderstanding, muddle, inaccuracies and, at worst, inappropriate policy. The source of such potential conflict or confusion seemed to centre around a number of contradictions in current policies and practices, which it may or may not be possible to resolve. It is important, however, to be aware of them as they often form the 'hidden agenda' in policy debates. They tend to polarise as follows:-

'Special' versus 'integrated' provision. Differences can be found between 'integrated' provision for disabled people in the development of labour policy on the one hand and 'special' policies relating specifically to the needs of disabled people on the other.

Administrative constraints and disabled people's aspirations. There are often difficulties in reconciling what disabled people desire and what is offered to them in a variety of administrative contexts.

Comparative power and influence of disabled people with the greatest needs as compared with those with less need. It has been contended that social policy may reward the most able and penalise those who are least able. This is particularly noticeable in the employment field where often only the more able disabled people receive consideration. Also, the 'disabled elite' are usually spokespersons for pressure groups. How representative they are of the mass of disabled people can be questioned.

The medical view of disability contrasted with the sociological view. There are sharply contrasting views on how to improve the circumstances of the disabled person in society. Whereas the clinical perspective emphasises methods of diagnosis, assessment and treatment of the individual, the sociological perspective emphasises the importance of determining the nature of, and modifying, significant social parameters. These two perspectives differ both in methods of investigation and in how they define a human problem. In helping an unemployed disabled person, for example, the clinical approach would involve assessment of individual characteristics, work history and residual marketable skills. The sociological alternative would involve examination of economic policies, industrial growth and business cycles, social welfare arrangements, public attitudes and employers' personnel policies. While, in practice, both perspectives tend to take both individual and social factors into consideration, differences arise because of the relative importance attached to each in different rehabilitation and employment policies.

'Gainful employment' versus 'meaningful occupation'. In some respects, this is an extension of the conflict which can occur between administrative constraints and disabled people's aspirations. Administrators generally view employment in conventional economic terms. But while both able-bodied and disabled people may wish to comply with such expectations concerning the need to seek productive, paid employment, this is not always possible in the present economic climate with its high levels of structural unemployment. Disabled people, who have always borne a disproportionately large share of unemployment, are therefore to be found in the ranks of those who, increasingly, are pressing for greater recognition of the socially useful, meaningful but unpaid work they perform in the absence of opportunities for paid employment.

The nature of the 'hidden agenda' for policy debates therefore underlined the necessity of taking a broad view of employment. It also underlined the need to recognise that 'the disabled' are not a homogeneous group, and that definitions of 'the disabled' vary according to the purposes for which such definitions are needed.

Some definitions reviewed for the purpose of this study were clearly for administrative convenience, having been developed in response to particular official requirements for specificity and objectivity. But, often within the same administration, definitions varied between schemes or benefits, creating anomalies. Comparisons between provisions for disabled people in different Member States revealed other differences in definitions, reflecting their differences in social and political history. This meant that 'the disabled' could not be treated as the same group in each state. On a wider scale, a number of large international organisations have tried to produce definitions of disability for more general application. But, since even these attempts have been developed for particular purposes, they too are not necessarily universally applicable. For example, the widely used World Health Organization definitions (WHO, 1980) are all prefixed by the qualification "In the context of health experience .....", when it is apparent that disability is not just a matter of health experience but also has significant social parameters.

Quite apart from administrative definitions of disability, there are others which reflect broad political and ideological approaches in which disability is defined in terms of the 'marginalisation' of disabled people in prevailing attitudes, systems of belief and models for the production, distribution and exchange of goods. Yet other approaches to the definition of disability have been produced by the growing social movement of disabled people. At the present time, such views tend to stress the perspective of the disabled person as a 'consumer' (ie as a person with rights to make choices, to express dissatisfaction and to take steps to make society aware of his or her needs). However, disability can also be defined in a much more intimate and personal way, reflecting, for each disabled person, his or her own experiences of disablement and future expectations. It is in this context of changing meanings based on personal experience that Blaxter has described the significance of a 'career' in disability. In her view, "These continually re-created definitions affect the way in which people seek help which in turn affects the way they are treated" (Blaxter, 1976).

It was concluded that both 'external' and 'internal' approaches to defining disability should be taken into consideration by the Commission of the European Communities in any future actions taken on behalf of disabled people. But, as others have noted (eg Cornes, 1982), where employment is concerned, disability is not the only problem confronting many disabled jobseekers. There is, therefore, a need to establish the significance of disability in the causal chain.

Defining the problems faced

It was clear that the present economic situation in Europe had implications which went beyond simple considerations of 'unemployment'. The fact that those out of work are supported by fewer and fewer people in the work force creates its own tensions unless, of course, the diminishing numbers of workers are capable of increasing productivity. The obvious solutions are either to increase the number of workers or to reduce the amounts paid out in benefits. Although we may hear of a new relationship between work and leisure, the problem is that unless some people work no-one can afford to play. To produce a useful evaluation of important task areas for the Commission in working towards new policies, 'employment' had to be seen as part of the total system of provision for disabled people. The emphasis, therefore, was on comprehending how the whole administrative, economic and political system (of which 'employment policy' is a part) fits together, and on exploring significant inter-relationships between the various elements. This system has had to change in response to the economic recession. The consequences, both actual and projected, of the 're-tuning' of national economies that is taking place have to be assessed. It was important to discover whether disabled people in Europe bore, or are likely to bear, a disproportionate share of the burden, not simply in terms of diminishing job opportunities but also in terms of increasing restriction of opportunity to have an 'occupied' or fulfilling life. In looking at both the system and the re-tuning, the social and historical conditions within a particular Member State that kept certain individuals out of the economy were examined.

In defining the problems which disabled people faced, the relationship between policy at the national level and policy at the level of the Commission and how these policies were to be implemented had to be considered.

Evaluation of policies

The employment situation in Europe.

Joblessness has been the single greatest political and economic challenge to the Community. By the mid 1980s, unemployment will be in the order of 15 million in the ten Member States (Merrit, 1982). This number will not take account fully of the number of unregistered potential workers, the 'Silent Reserve', which will include a disproportionately high number of dispirited, disabled jobseekers. In Europe generally, this 'invisible' group is thought to be as high as a further 20 per cent of the official figures for unemployed people.

There are ways of expressing the current state of the labour market apart from stating the number of unemployed people, both registered and hidden. When, in the early 1980s, joblessness in the European Community had been steady for two years around the 6 per cent mark, it was estimated that 4 million net new jobs would be required to keep it at that level.

Not only are rates of unemployment higher than ever before, the nature of unemployment has changed. Unemployment has become a long-term rather than a temporary phenomenon, and benefits orginally designed to tide people over between jobs are now serving long-term functions for which they were not conceived.

Policies to deal with the recession

The labour policy administration in the Commission has responded to the present crisis by exploring a number of possibilities including creating new jobs, spreading existing jobs amongst a greater number of people, or stabilising temporary and part-time work. These studies have been concerned with the reorganisation of working time, looking particularly at part-time work (EEC, 1977); work-sharing (EEC, 1978); new forms of work, particularly job creation schemes (EEC, 1981) and co-operative enterprises (EEC, 1982). In addition, there has been a stream of commissioned reports as well as many academic studies on the impact of the new technologies (EEC, 1979).

Implications for disabled people

The implications of all of these developments for disabled potential employees are exciting. I was concerned to find, however, that in the Programme of Research and Actions on the Development of the Labour Market already referred to (EEC, 1980), the importance of these proposed activities for people with disabilities was not explored or alluded to. Its discussion of 'future priorities' for research on the labour market did not refer to the plight of disabled people who seek employment. It can, of course, be argued that separate measures for disabled people are a sign of poor general labour policy. Nevertheless, it is to be hoped that the establishment of the European Bureau for Action in Favour of Disabled People will ensure that this omission is rectified and that future policy development includes consideration of disabled jobseekers.

Even if disabled people were to be included amongst the target group for such schemes, there is a problem which is all too familiar to us in the United Kingdom. In both the United Kingdom, and indeed in the Republic of Ireland, there is no 'partial invalidity' benefit. In these countries, a disabled person participating in part-time work, a shared work scheme, a 'working hours' as opposed to a 'working week' scheme, or participating in worker co-operatives could only do so at the risk of losing his or her benefits entirely, and of not earning enough money to make up either this loss or the additional costs which working life may place on domestic management. In effect, this means that disabled people in some countries are discriminated against because of their particular situation as regards eligibility for benefit. In the United Kingdom there is a 20 pounds per week 'therapeutic earnings' limit. Any earnings over this limit are taken to indicate that work is not simply of a therapeutic nature and results in a total loss of benefit.

The ideal rehabilitation route

I used as a yardstick of comparison between the countries I studied an 'Ideal Rehabilitation Route'. This comprised an algorithmic model in which a hypothetical disabled person interrogates the particular administration about provision for needs leading up to employment and/or a stable fulfilling life style.

In evaluating policies it is necessary to assess not only employment policies and 'instruments' but the whole range of choices available to disabled people entering work. By this means it was possible to identify the obstacles along the way. While full integration into the community involves being able to work, it goes much further and much deeper than that. It is also a much more complex process than is suggested by the typically linear administrative 'map' of provision of services which, in reality, is often disconnected, complex and incoherent. Employment is in some senses one of the choices that should be as available to disabled people as it is to the rest of the population. However, it is just one choice, and one which is moreover interlocked with many others - such as equal transport opportunity, equal choice about places to live, equality of choice in recreational and cultural activities, and so on.

In the three European countries I studied in detail, there were vast differences in administrative provision. Denmark did not provide special 'instruments' for entry into work, having remarkably well- integrated services across a broad range of needs. Danish service provision, which has recently become decentralised, is however beginning to feel the pinch in finding work opportunities for its young disabled people in urban areas. Germany, on the other hand, has highly fragmented services, but does not aim to be a Welfare State, mainly providing for the very severely disabled. However, as the recession deepens, it is clear in the public finance measures that are being introduced for the 'hard to place' on the labour market that the scope of German provision is widening to include less severely disabled people. In the United Kingdom, the growing recognition that disability is but one factor in the marginalisation of some people in the economy has led to a reorganisation of the work of the Disablement Resettlement Officer to concentrate on people for whom disability is the major obstacle to finding employment. In contrast with developments in Germany, this is a subtle narrowing of concern. In the United Kingdom the situation is further compounded by the complexity of the benefit system and the absence of any form of partial invalidity benefit.

The question remains as to whether the European position should be one of special 'instruments' to help disabled people enter or re-enter the work force or of more broadly-based human rights approaches of the kind so far embodied in the work of, and legislation emanating from, the European Women's Bureau as part of the Equal Opportunity Movement in Europe generally.

Note

The research briefly outlined in this paper is described in detail in an official report of the Commission of the European Communities' Bureau for Action in Favour of Disabled People (Croxen, 1982).

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PART II

VOCATIONAL HABILITATION AND REHABILITATION

Vocational habilitation and rehabilitation

Editorial commentary

Many people with disabilities may return to work following illness or injury without assistance from specialised vocational rehabilitation services. Nevertheless there remains a substantial number who are dependent on such help. Their requirements are acknowledged by the provision of an array of remedial, rehabilitation, training and resettlement services. In most countries, these services and related policies on the employment of people with disabilities were introduced some time ago. However, labour market conditions, the types of disablement experienced by their clientele and clients' outlooks and expectations have since changed, especially in the past decade.

Those responsible for providing these various habilitation and rehabilitation services have always attempted to ensure that services kept abreast of labour market developments and changing patterns of demand. Nevertheless, by the mid-1970s, there was widespread concern about increasing costs, declining effectiveness and the potential of habilitation and rehabilitation services to deal effectively with such new client groups as those with mental handicap (mental retardation) or history of psychiatric illness or who, like those with spinal injuries, were benefitting from changes in health policy or medical practice to the extent that they had markedly improved prospects not only of survival but also, under appropriate circumstances, of entering or re-entering employment. It was a concern to enhance the relevance or improve the efficiency and effectiveness of services which lay behind an increased investment in research and development during the 1970s. This research aimed to evaluate established policies and programmes; to enhance the stock of assessment techniques and rehabilitative procedures; to improve decision making and to achieve better co-ordination in delivery of services to individual clients; to market clients; and to upgrade the training and expertise of rehabilitation service providers. The next five chapters contain some of the work that was undertaken in four countries to achieve these broad objectives.

In Chapter Six, Höök and Jesperson describe a comprehensive programme, implemented at the Institute of Rehabilitation Medicine in Gothenburg, to assist severely disabled young people with cerebral palsy or spina bifida to make the transition from paediatric habilitation centres to independent living and employment. It is an example of the steps that were taken in many different contexts during the 1970's to co-ordinate at an individual level the delivery of the various services needed by the clients of rehabilitation services, either generally or, as in this case, for those with particular disabilities. The service described and evaluated by Höök and Jesperson had social, educational and vocational objectives and therefore involved contact and collaboration with many other services and agencies in these spheres. Its success may be judged by the high proportion of its severely disabled clients who were in employment, training or education when followed-up.

This Swedish service illustrates one other point of more general application. It is the multidimensional nature of the handicap experienced by severely disabled people and, hence, the necessity for concurrent attention to their medical, social, mobility, employment and other problems. Vocational rehabilitation is often conceived as the final stage in a process in which different problems are dealt with sequentially. This study highlights the importance of developing better coordinated strategies where the severely disabled are concerned.

The next two chapters present results from a five year programme to evaluate the effectiveness of the British employment rehabilitation service, provided through a country-wide network of 27 Employment Rehabilitation Centres. In Chapter Seven, Cornes describes the background to this research and summarises its objectives, results, conclusions and recommendations for future practice. As the reader will discover, the picture revealed by this evaluation was none too flattering. Staff from the Employment Rehabilitation Research Centre, who undertook the research, found ERCs to be of quite limited effectiveness. While this was attributable partly to the service being obliged to deal with a clientele whose job prospects were poorer than those who were referred to the service 30 or 40 years ago, and partly also to having to cope with much more adverse labour market conditions, it was possible to identify scope for improvements in efficiency and effectiveness. Recommendations to this end included experimentation with alternative decision making procedures, adoption of new assessment methods and rehabilitative procedures, and new measures to retain skilled and experienced staff and to enhance their expertise.

Cumella (Chapter Eight) reports a detailed follow-up survey of former clients who were interviewed 12 months after leaving ERCs in order to find out about their experiences in the labour market during the intervening year. His work underlines the difficulty that many had in finding and keeping suitable employment, including an unexpectedly high proportion (almost one fifth) who experienced continuing problems with their health, and who were not yet fit for work. Altogether, less than half (45 per cent) were in work a year after leaving ERCs, although more had held jobs for part of that period, and small proportions were on training courses or on government-sponsored job creation schemes for the long-term unemployed. Cumella's work also demonstrates that obtaining employment may not necessarily eradicate all aspects of employment handicap experienced by people with disabilities. For example, many former ERC clients who found jobs reported incomes that were well below national average rates and other work-related sources of stress or job strain. Others, who were referred to vocational training, had great difficulty in obtaining employment which made use of their newly acquired skills. That so many ERC clients found such difficulty in returning to work may be considered to highlight the limitations of using resettlement (into any job) as a measure of rehabilitation service effectiveness. It may also underline how much scope there is to improve employers' disability management programmes and to achieve more effective coordination between rehabilitation, training and placement services.

The following account by Karjula (Chapter Nine) of a similar follow-up survey of clients referred for work evaluation in Finland was presented as a poster. It is included here because it both complements and contrasts with the previous study. In showing how few clients are in employment a year or so after leaving employment rehabilitation or work evaluation centres, both studies draw attention to the declining effectiveness of vocational rehabilitation services in the late 1970s. Comparison with both British and Finnish statistics for the 1950s and 1960s would reveal just how marked this decline has been. However, the two authors offer rather different explanations for clients' lack of success in the labour market. Whereas Karjula is inclined to account for success or failure in terms of individual differences in, for example, ability and motivation, Cumella attaches more importance to such environmental factors as the quality of rehabilitation services, employers' attitudes and recruitment policies, and the effectiveness of case management or coordination in individual cases. These conflicting viewpoints, of course, draw attention to the wider debate in rehabilitation circles concerning the pros and cons of clinical versus structural models and modes of intervention (Stubbins, 1982; Woods et al, 1983).

The final contribution to this section by Stone and Binford (Chapter Ten) describes work undertaken to modify an environmental variable, in this case a staff training programme to prepare personnel to fill direct service positions providing assistance to mentally handicapped (mentally retarded) citizens who were being transferred from residential institutions to community care. The project aimed to provide trained staff to help community-based services in Kentucky fulfil their remit to provide appropriate residential, educational, vocational and other support facilities. Stone and Binford's account of how this was accomplished, using work experience funds, and their evaluation of the staff training programme exemplifies the increased attention that the training of rehabilitation service providers has received in recent years. Interest in this aspect of service provision was also apparent in other conference activities including presentations on the training of staff for involvement in behaviour modification programmes in facilities for the mentally retarded in Florida and Georgia by Bailey, Reiss and Burch and by Collins, Bailey, Gelabert and Griffin. It was also apparent, in Cornes' recommendation (in Chapter Seven) that staff training needs should receive priority in future efforts to improve the efficiency and effectiveness of the British employment rehabilitation service.

Up to a decade ago, when most of the research reported in this section had its origin, the outlook for vocational habilitation and rehabilitation was quite optimistic. In Great Britain, for example, a comprehensive review of policy and services concluded that, although there was scope for some improvements, future requirements could be met without any radical change to existing arrangements. And, in the United States, confidence in vocational rehabilitation's potential justified the 1973 amendments to the Rehabilitation

Act which enabled previously ineligible, severely disabled citizens to be referred to appropriate programmes. While, as noted earlier, there was a measure of concern over the rising costs of vocational rehabilitation services; their progressively declining effectiveness, as measured by placement statistics; and their capacity to respond to changing demand, it was considered generally that research and development work of the kind reported in this section in the longer-term would help to keep services on course and to improve their effectiveness.

On the evidence available to planners and policy decision makers at the time, these may have been the most appropriate decisions to make. However, we now know that the shock waves set in motion by the dramatic rise in the price of crude oil during the 1970s have had a longer lasting and more devastating effect on the world economy than was originally anticipated, and that the subsequent recession and rise in structural unemployment in many industrialised countries in the 1980s have been accompanied by a technological revolution which may re-shape national economies. It is now also increasingly apparent that those jobs which are disappearing most rapidly as automated procedures displace human labour are the very ones in which traditionally the clients of vocational rehabilitation services were most readily placed. Against this background, there must be some doubt about the long-term effectiveness of vocational rehabilitation's immediate response to these developments- the various attempts in recent years to maintain the impact of services by teaching clients job seeking skills, by improving the marketing of clients and by encouraging employers to adopt more sympathetic recruitment and disability management policies. "How will people with disabilities fare in the labour markets of the future?" and "How well prepared are vocational rehabilitation services for a post-industrial world?" are therefore questions which may require much more detailed consideration than they have received hitherto.

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P.C. and J.H.

SIX

The social integration of severely disabled young people with special reference to work and occupation

Olle Höök and Ann Jesperson

Institute of Rehabilitation Medicine, University of Gothenburg

Introduction

In Sweden, there are three main types of facility for severely disabled children - habilitation centres for physically disabled children with normal intelligence; centres for mentally retarded children; and centres which cater for particular groups, for example, the deaf-blind. The subjects of this investigation are from the first group, having been referred to the Institute of Rehabilitation Medicine at Sahlgrenska Sjukhuset, Gothenburg by regional habilitation centres between 1973 and 1980. Their main impairments were cerebral palsy and myelomeningocele (spina bifida). In Sweden, with a population of 8.3 million, the incidence of cerebral palsy decreased from 2 per cent to 1.4 per cent between 1960 and 1980. In 1980, 140 children were born with cerebral palsy and 75 were born with myelomeningocele, the other common cause of physical disability in childhood.

Children and young people in the Municipality of Greater Gothenburg who need special habilitation measures are handled either at Broströmsgården, the municipal habilitation unit, or at Bräcke Östergård, the habilitation centre of Western Sweden. They usually leave these centres at 16-18 years of age. Previously, no coordinated arrangements existed for continued management of these young persons. In many cases, as far as social care was concerned, they were more or less cast adrift. About 10 years ago, an agreement was reached between these habilitation centres and our Institute of Rehabilitation Medicine, according to which the Institute was to take over responsibility for the continuing care and social adjustment of these patients, with the special aim of achieving a suitable coordination of the various forms of care.

In practice, this has meant that the two habilitation centres sent on referrals to the Institute together with an exhaustive summary of the case records, after which we informed the respective clients that, in future, they would be welcome to come to the Institute with special problems connected with their disabilities.

The sample

During the period 1973-80, 105 patients were referred. Of these, 84 received treatment through our Institute, while the other 21 patients did not avail themselves of the offer, either because they had kept in contact with other doctors or hospitals or because the person in question "had not got round to coming". These patients (from Habilitation to Rehabilitation) are called HR patients in this investigation. They were divided into two groups, one consisting of the HR patients handled at our Institute (Group HR-1, 84 persons) and the other comprising those with whom contact was only established through referral and who were subjects of a follow-up investigation that was conducted in the spring of 1981 by means of a postal questionnaire (Group HR-2, 21 persons, with replies received from 95 per cent). The composition of Group HR-1 is shown in Table 6:1. Many of the patients in this group had several different disabilities. In general, the group consisted of very severely disabled young people.

Table 6:1 Patients from Habilitation Centres treated in the Department of Rehabilitation Medicine, Gothenburg (1973-1980)

Age in years	N	%
16-20	23	27
21-25	50	60
26-30	11	13
Total	84	100

Disablement	N	%
Wheelchair bound	40	48
Impaired manual function	44	52
Visual impairment	16	19
Hearing impairment	7	8
Speech difficulties	21	25
Other disabilities	49	58

Procedures following referral

This category of patients has a more or less permanent need for access to one special authority to whom they can turn with their problems, not only those connected with their physical disabilities but also problems of a psychological and social nature.

During 1973, about 10 patients who had left habilitation centres were handled at our Institute, while in 1980, in addition to 12 new clients, 44 patients returned for further assistance. These patients visited our Institute several times during that year. The number of patients referred to the Institute annually has remained fairly constant, ranging from 8 to 13, an average of 10.5 patients per year. They usually return once or twice a year, and comprise at present a comparatively large out-patient group which has now reached a size of some 60 patients annually.

Contacts with different authorities

A characteristic feature of these patients was the fact that they needed contacts with many different agencies or services. An attempt has been made in the follow-up investigation to form an idea of the extent to which the patients themselves made the contacts spontaneously, and of how often it was the staff of the rehabilitation department who took the initiative in arranging the contacts. It was gratifying to note that in about 50 per cent of the cases the contacts were initiated by the patients themselves. On the other hand, in about 25 per cent of cases, it was the Institute that had to make the contacts, and in the remainder the initiative was taken by others. In a differentiated welfare society, patients can be in contact with quite a number of different authorities. Figure 4 shows the range of such authorities involved with this particular sample of patients. Many of these patients had been in contact with a relatively large number of authorities, the average being between four and six per patient. Some needed contacts with as many as ten different authorities, underlining the need for a coordinating body.

Need for resources

In order to obtain a rough estimate of the resources needed to cope with this type of patient when they came to our Institute, all staff members who had been involved with the patients over a 2-month period (15 January - 15 March, 1981) were asked to record the time spent on these cases. During that period, 33 patients were handled and the total time spent was 263 hours: 10 hours or more for 3 patients (9 per cent), 5-10 hours for 7 patients (21 per cent), and 5 hours or less for 23 patients (70 per cent). Most time was spent on home visits and in making arrangements for improvement of living quarters. A few patients with excessively severe psychosocial problems which required several days' work were also treated during this period.

Figure 4 Patients' contacts with other services

- Medical care services
- Home help services
- Social welfare authorities
  - Social assistance allowances
  - All municipal grants and allowances
  - Family care services, etc.
- Public insurance office
- Public employment agency
- Public housing agency
- County housing board
- Orthopaedic workshop
- Transportation services
- Transportation service for the handicapped
- Automobile officials
- Housing estates
- Centre for technical aids
- Adjustment teams
- School authorities

Report on the management of a patient

The patient: Erik, aged 20 - Diagnosis: cerebral palsy + bilateral visual impairment + increased tonus in both legs and the right arm. Confined to a wheelchair. Could not raise himself without help.

Social situation: Lived with his parents in a villa adapted for the use of a wheelchair. Nursing was undertaken mainly by his mother (aged 51). His father (aged 55) was often away on business trips. No brothers or sisters. He received his schooling at the Bräcke Östergård habilitation centre. During that time he had lived at home. He then underwent social training at Furuboda, a special Rehabilitation Centre in the south of Sweden for half a year.

Work: The vocational rehabilitation authorities had received a referral from the Bräcke Östergård centre a few months before, with a request for vocationally-oriented training. There were problems in keeping him occupied during the waiting period.

Consultation at our Institute: The medical examination resulted in referrals to a physiotherapist, an occupational therapist (because of his wishes regarding certain alterations in the home environment), a social counsellor, and a phoniatrician (speech therapist). An allowance for medical care at home was sought, and contact made with the home help services. It was absolutely necessary to relieve the mother of some of the burden of caring for her son. The possibilities of various day centres were discussed. A place was finally arranged at the day centre run by the Association for Disabled Children and Young People, in co-operation with their counsellor. The physiotherapy programme was timed so as to achieve maximum relief for the mother.

Vocational training was planned, although it was uncertain where this could take place. As it was found that Erik's mental capacity was borderline low, discussions regarding further vocational training were complicated. In the end he was sent to a Work Training Centre (Vejbystrand) for a course of readjustment and training.

One year later: He visited us to obtain a certificate for a temporary disability pension. He was then referred to a summer camp. From our staff, the occupational therapist, the physiotherapist, and the social counsellor had been in regular contact both with Erik and with his mother. The mother had now - on our recommendation - started a vocational training course of her own. Erik had been able to spend some time in a hotel for handicapped persons, in order to relieve his mother. After completion of the course at the Work Training Centre, an employability assessment was sent from there to the vocational rehabilitation authorities as well as to our Institute. A sheltered workshop was recommended.

Speech training was continued. A renewed course of physiotherapy was needed. The vocational rehabilitation authorities were contacted again with a view to Erik obtaining work. Grants were sought to cover certain financial problems connected with his treatments. At the same time, an application was lodged with the Municipal Housing Agency for a dwelling of his own.

Two years later: Erik obtained full-time work at a sheltered workshop. He reported to the Social Insurance Office that he had started working. He received an offer of an apartment, and an investigation was initiated regarding the possibility of obtaining a housing allowance. After some time, he decided not to accept the apartment but to wait for a more suitable offer.

In his work as a wage earner, he acquired new friends, became more open in his manner, and was in better mental balance. His need for freedom and independence increased. Transportation by public transport buses was found to be restricting, and the purchase of a car was considered. After a medical certificate had been obtained and contact was made with the social counsellor, the matter was taken up with the County Employment Board, where a grant from the employment service of the Labour Market Board was sought. Because of his disability, Erik could not drive a car himself, but his mother offered to apply for a driving licence and act as his chauffeur. Part of the grant was used to cover the costs of her driving lessons.

Future contact with the Institute: Contact with our Institute will be maintained in the future. Erik will continue to need medical assistance in the form of various medicines, referrals and certificates, as well as other medical assessments. Intensive periods of 10-15 physiotherapy treatment sessions are needed every six months. Contacts with the occupational therapist are needed every few months in order to keep up with new technical aids, adaptations of his accomodation appropriate to his handicap, and training. He will continue to have a great need for guidance and support from the social counsellor. Regular sessions with the psychologist have proved valuable both in helping him to cope with the demands with which he is confronted and for assessment of his intellectual and personality resources.

Results

Work and occupation

In Group HR-1, of the 78 replies received (a response rate of 93 per cent), 46 were working, 19 were studying, and 13 had no particular occupation. Of the 46 who were working, 42 described the type of work on which they were engaged. Twenty (47.5 per cent) had office work, 15 (35.5 per cent) were working in industry, 2 (5 per cent) worked in the welfare or nursing services, and 5 (12 per cent) worked in other fields (caretaker, research assistant, etc.). As regards working hours, 29 (69 per cent) had full-time work; 10 (24 per cent) worked half-time; and 3 (7 per cent) had part-time work. The conditions of employment were permanent work in 27 cases (65 per cent); employment with a wage subsidy in 13 (30 per cent); and emergency relief work in 2 (5 per cent). The employers were municipal authorities in 7 cases (17 per cent), state authorities in 14 (33 per cent), 6 of which were in the 'Bohus' group (one of the 24 regional organizations attached to the Swedish Communal Industries for sheltered employment); private concerns in 14 (33 per cent); and other forms of employment, for example with sports clubs or associations of the handicapped, in 7 cases (17 per cent).

Many in the group were studying, either while waiting for work or because their disability constituted too great an obstacle to their obtaining employment. The latter difficulty is of course aggravated by the present shortage of jobs on the labour market.

Those who were most severely disabled usually had no occupation at all (17 per cent in Group HR-1 and 25 per cent in Group HR-2). Their chances of being able to do any work would not seem to be good.

In most cases, the incentive to look for work or to enrol for studies occurred during the habilitation treatment. The role of the rehabilitation team therefore was that of providing a valuable support for these patients in their working situation.

It is probably not necessary to point out how stimulating it is for most people to be able to leave home and experience meaningful work and the company of fellow workers. On the other hand, in view of the many problems involved, not least that of transportation, it may at the same time be physically and mentally exhausting for a severely disabled person to undertake work outside the home. All these factors need to be weighed carefully.

It is therefore important to have access to a body of experts where one becomes well known as the years pass and where help and advice can be obtained on medical and psychosocial problems. At a medical rehabilitation department, coordinated efforts can be made in matters relating, for instance, to physiotherapy, fitting of technical appliances, adaptations to accomodation, and contacts with vocational rehabilitation services, all of which make the situation easier for the patient and helps to ensure more rational management.

Problems with accommodation

A detailed study of accomodation problems in Group HR-1 was not made in this investigation. Case records revealed that many of these young people were living at home with their parents, a situation which, of course, is a temporary arrangement. In the postal questionnaire, 13 per cent of those who replied expressed a desire for an improvement in their living arrangements.

Conclusions

This investigation reflects the difficult, many-sided, and often almost insoluble problems faced by such severely disabled young people. It has also demonstrated clearly the need for active case seeking, which may be achieved appropriately by an annual follow-up.

We have found it necessary to establish a special panel of persons possessing a good knowledge of this group of young people. Provided that access to a rehabilitation department is available at regional and county levels, such an arrangement, with adequate resources, is in our opinion the best solution. If this is not possible, other possible solutions should be tried.

At present, considerable hope is being placed on the possibility that a well developed system of primary care will reduce the need for specialist attention at our large general hospitals, and there is every justification for this. However, it should always be remembered that some patients, not least those with multiple disabilities, require the application of many different measures at the same time, assisted or advised by a team of qualified experts. This can never be achieved through primary care, however well developed and effective it may be. It requires a working team consisting of a doctor with specialist training in rehabilitation medicine, and a staff with experience of the mental reactions of a patient suffering from a long drawn out, permanent disability and a complete, overall knowledge of the patient as a whole. In addition, a good knowledge is required of methods used in fitting patients with the special technical appliances often needed by this group, as well as knowledge regarding the requirements for any adaptation to living quarters on the basis of the nature of the disability and good contacts with the housing authorities. Knowledge is also needed regarding continuation of the physiotherapeutic measures and continued training of the patient in his occupational activities, as well as on questions of vocational resettlement.

In conclusion, we would emphasize the necessity for the responsible authorities to issue clearly formulated information on how this group of young people with multiple disabilities can be assisted in the best possible way. In other words, there is a need for information about how our various resources for rehabilitation should be combined as to produce the best effect. The purpose of our cooperative efforts is to build up these young patients' self-confidence. Counselling is time-consuming - but it is very rewarding for the youngsters, their families and the whole society.

SEVEN

Employment rehabilitation in Great Britain: an evaluation and review of recent developments

Paul Cornes

Rehabilitation Studies Unit, University of Edinburgh

Introduction

Most people of working age who experience illness or accidents are able to resume their former occupation or find new employment quite quickly. A sizeable minority, however, find that re-entering the labour market is more difficult. Some are too ill or disabled to work, while others are capable only of part-time or sheltered employment, or can participate only in some form of diversionary occupation. Yet others, in spite of being deemed capable of full-time open employment, are unable to find suitable jobs. It is this last group who form the majority of the clientele of public vocational rehabilitation services. They are a group who, without special provision or guidance, have always been at risk of drifting into long-term unemployment, with all its potential additional financial, social and health problems.

Employment rehabilitation in Great Britain

In Great Britain, one of the principal vocational rehabilitation agencies is the countrywide network of Employment Rehabilitation Centres (ERCs). It is part of a wider range of services established on the recommendation of the Tomlinson Committee in 1943. The resultant *Disabled Persons (Employment) Act*, 1944 empowered the (then) Minister of Labour to provide industrial rehabilitation courses for people with disabilities who experienced difficulty in entering or re-entering full-time employment owing to congenital impairment or following illness or injury. This service, first provided in the post-war years, has since expanded. The Manpower Services Commission (MSC) is now responsible for 27 ERCs, employing around 1,000 staff and dealing with some 15,000 clients each year at a current annual cost of approximately 20 million pounds.

On average, ERC courses take seven weeks to complete. Most clients are male, unskilled and semi-skilled manual workers whose disabilities stem from a wide range of physical and mental disorders. Compared with most disabled people of working age, they are a young population (median age 32 years). ERCs do not normally attempt to place clients directly into employment. The usual end product of attendance is a written report on each client for the Employment Service personnel who refer clients to ERC and who are subsequently responsible for placing them in employment or vocational training.

Apart from placing clients into suitable employment - the overriding objective of employment rehabilitation - the aims of ERCs fall into two categories. One includes staff responsibilities to provide professional services (eg. medical advice, occupational assessment, vocational guidance and help with personal problems); to create an authentic industrial atmosphere and to tailor course arrangements to suit individual needs. The other category of aims reflects changes which clients may undergo during attendance. These include, for example, enhancement of physical and mental readiness to cope with the demands of work and a better awareness of work capabilities.

The effectiveness of employment rehabilitation

Between 1976 and 1981, the organization, operation and effectiveness of ERCs were examined and evaluated formally by a specially appointed, multidisciplinary team based at the Employment Rehabilitation Research Centre (ERRC) in Birmingham. Throughout the 1950s and 1960s, some 60 or 70 per cent of ERC clients were placed in employment or training within three months of attendance. By 1970, however, resettlement rates had fallen from these levels, and there was a marked decline from 1975 onwards. The main reasons for establishing the ERRC were official concern over decreased effectiveness, and the possibility that the service was not adapting to changing patterns of demand, (Department of Employment 1972; 1974).

The ERRC programme aimed to identify the main objectives for policy and practice of the Employment Rehabilitation Service and to evaluate systematically how well each one was achieved in practice. This entailed a study of the history of the service from its origins in the 1940s, taking account of any major changes in policy or resources, and reviewing evidence from previous research and official sources. It also entailed undertaking new research to provide a clearer picture of the clientele; the results of ERC attendance; and related studies of the organization and operation of the service.

Together, these studies were expected to provide evidence from which to assess the general effectiveness of the service, identifying where improvements were needed or where new approaches might be tried; to recommend how such improvements might be made and to set up and evaluate trials with alternative methods or procedures. These diverse aims were pursued in a series of interrelated projects which employed a variety of methods including literature reviews, surveys, experimental and action research procedures, observational studies and audits of case papers and official statistics.

Results of the ERRC programme

There were four broad categories of result: those which provided a clearer picture of the people who are referred to ERCs; those which enhanced our appreciation of the effects of attendance on clients' physical and mental readiness for work; those which indicated clients' subsequent competetiveness in the labour market; and those which extended our knowledge regarding the effectiveness of ERC methods or procedures and, hence, which helped to identify where alternative approaches might be tried.

The clientele

Research results questioned both the traditional model of service delivery and almost all official assumptions about clients' characteristics (Cumella, 1981). For example, less than a fifth of all case histories fitted the traditional model of work interrupted by illness or injury followed by appropriate medical and social rehabilitation before referral to ERC. Also, while 97 per cent of clients were classified officially as disabled, only half had disabilities which might affect the range of work they could undertake. Less than half had been recently sick and, for most, recent sickness did not coincide with onset of disablement. Nor were ERC clients representative of all disabled people of working age, their number including a high proportion of people who would be handicapped in the labour market even if not disabled. These results indicated that information about clients which is relevant to practice and policy decision making was not available routinely, and that diagnostic and assessment procedures needed to be improved.

Enhancement of mental and physical readiness for work

Evidence from self-rating scales suggested that, overall, ERC attendance resulted in small improvements in clients' work confidence and self esteem, and in reduced anxiety and feelings of inadequacy (Harradence, 1981a). However, other assessments of clients' keenness for work and job involvement, and staff assessments of their workshop performance, showed no change (Harradence, 1981b). Fitness and physical work capacity were also unaffected by ERC attendance. A controlled trial demonstrated that, while such improvements were attainable from participation in specially devised programmes, clients following normal course arrangements showed no improvement (Cornes, 1981a). All of these results were regarded as indicating a need for improved rehabilitation methods.

Return to work

ERRC analyses confirmed that only a quarter of former clients were in employment three months after leaving ERC (Cornes, 1982). Other studies revealed that, even after a year, only half were in work, although others had been employed for some of that time, and as many as a fifth had experienced further problems with their health, preventing return to work (Cumella, 1982a). The latter study also highlighted the difficulty that former clients experienced in obtaining jobs in public sector organizations or in larger private sector companies, and revealed the extent to which there is a markedly weaker link between rehabilitation and training in Britain than in many other countries.

From another perspective, the ERRC found that clients received no help with jobseeking skills and proposed the introduction of appropriate job search training (Harradence, 1979; 1980b). Evaluation of the programme developed for this purpose confirmed the value of such training (Harradence, 1980a).

ERC methods and procedures

Other research examined those aims of ERCs concerned with the creation of a rehabilitation environment, tailoring arrangements to individual needs by making flexible use of resources, and provision of professional help and guidance. For example, application of scales which were developed to measure ERC social climates confirmed that the broad policy aim of creating an environment in which both therapeutic and industrial elements are blended is achieved in practice, although there is some variation between centres (Cornes and Horton, 1981a). Wider comparison with other rehabilitation settings, however, suggested that ERCs are generally as successful as industrially-based rehabilitation services in generating this ideal milieu (Cornes and Horton, 1981b).

Information about the degree of individualisation achieved in case management and the degree of flexibility exercised in the utilisation of resources was obtained by following clients through the ERC system, noting the decisions made on their behalf, and by obtaining their views on ERC attendance These examinations of decision making procedures (Tebbutt and Horton, 1980; Horton, 1981) suggested three reasons, all reinforced by consumer opinion, why such objectives were not fully realised in practice.

First, because all clients underwent a similar assessment process which was more geared to routine fact gathering than to diagnosis, it was found that ERC procedures permitted few opportunities for comprehensive analysis or individualised planning. ERRC recommendations attempted to break this mould by proposing trials with other approaches to assessment, course planning, monitoring and evaluation (Cornes, 1982).

Second, it was found that, over the years, validation of assessment and rehabilitation methods had been accorded low priority, with even less attention paid to developing more refined means of setting goals for individual clients or evaluating their performance or progress. The service therefore received no feedback on its effectiveness, except by reference to intuitive judgement or rough rules of thumb. ERRC initiatives to remedy these shortcomings included studies to draw attention to the special needs of particular client groups, including women (Somerville, 1981) and those with histories of psychiatric illness (Cornes, 1981b). They also included the preparation and distribution of reviews to draw attention to recent developments in assessment and rehabilitation methods (Horton, 1982a) and the application of ergonomics to rehabilitation (Horton, 1982b).

The third shortcoming found was the extremely low level of client participation in all aspects of decision making. This prompted trials with client participation in case conferences (Horton, 1981) as well as proposals for new procedures to ensure greater involvement in all aspects of course planning, monitoring and evaluation (Tebbutt and Horton, 1980; Cornes, 1982). It was also considered that such involvement should extend to the preparation of the final report. It is therefore only recently, as a result of research (Cumella, 1982b), that some ERCs have begun to disclose final reports to clients.

ERRC conclusions and recommendations

It was concluded that the British Employment Rehabilitation Service enjoyed only a modest measure of success in meeting its various aims. While one reason for declining effectiveness was a changing and increasingly inhospitable labour market, particularly since the mid 1970s, other reasons were of much less recent origin. The conservative tone of previous official reviews; lack of investment in research and development work and in evaluation of performance; and a centralised, essentially bureaucratic management style which was not well suited to the requirements of a rehabilitation service had all contributed to its failure to update methods and to revise procedures in order to meet the needs of its present clientele and a changing labour market.

Nevertheless, it was considered that, even within current labour market constraints, ERCs had a potential to make a more effective contribution to the rehabilitation and resettlement of disabled people. The four main recommendations for future practice arising from the ERRC programme (Cornes, 1982) were intended to outline an organizational and operational context within which, in time, this might be achieved.

Firstly, the present decision making system, based on a case conference, should be replaced by an alternative in which each client is allocated to a single professional member of the ERC staff, who would assume responsibility for a small caseload of clients throughout their period of attendance. That person would be responsible for making an initial diagnosis and assessment of needs and, in consultation with each client, for drawing up and agreeing a rehabilitation plan setting out specific objectives to be achieved, monitoring progress against plan and preparing a final report with recommendations regarding suitable employment.

But more flexible, individualised and participative procedures were considered to provide only part of the answer. An effective shift away from an essentially bureaucratic model towards the proposed professionally-oriented alternative also called for other, longer-term developments to improve the housekeeping of relevant professional and technical skills. Secondly, therefore, it was recommended that the service should make a substantial investment in the creation of a stock of appropriate assessment and rehabilitation techniques. Thirdly, there should be a marked expansion of in-service and other opportunities for staff training in order to ensure that ERC personnel are adequately prepared for their new range of duties.

Fourthly, the Manpower Services Commission should devise ways of retaining in ERCs the skilled and experienced, qualified staff, upon whose contributions the quality and effectiveness of future practice would depend. High rates of staff turnover have caused a fairly constant drain of expertise from the service (Cornes, 1981c). There would be little point in new measures to improve its performance unless steps are taken to achieve a better housekeeping of professional and technical expertise.

Recent developments in employment rehabilitation

The Manpower Services Commission, quite deservedly, has been widely applauded over its agreement to publish the research findings. It is possible, however, that its more practical responses to the ERRC programme are not so well known. It therefore deserves to be pointed out that, from the outset, there was close collaboration between researchers, administrators and practitioners. This ensured that every opportunity was taken to keep staff informed about the progress of research. By the end of the programme, research results had already been incorporated in a new handbook issued for the information and guidance of ERC staff (Manpower Services Commission, 1981a). Research also contributed to policy decision making, most notably in contributions made to an official review of the MSC's role as a provider of vocational rehabilitation services (Manpower Services Commission, 1981b). Last, research helped to pave the way for an unparalleled upsurge of interest on the part of ERC staff in experimentation with new methods and procedures. Over the past three years, almost every ERC has been involved in trials with new methods and procedures as recommended by the ERRC; participation in the major experiments with alternative decision making procedures endorsed by the official review of employment rehabilitation; or, most encouraging of all, in developments which ERC staff, taking advantage of a changing climate, have themselves initiated. It would, of course, be unrealistic to expect all such changes in practice or innovatory procedures to have positive outcomes. However, the Manpower Services Commission has recently reviewed the various developments introduced since 1981 and has found that many have proved to be quite effective alternatives to those which they replaced, and also that client satisfaction with the service has increased.

As yet, the introduction of new methods and procedures has not resulted in higher resettlement rates. But it may be unrealistic to expect a research programme which, like the ERRC's, was directed to examine the organization and operation of ERCs rather than the wider social and economic environment in which they operate, to have a marked impact of this kind. Other research (eg Noble, 1979) has clearly indicated that vocational rehabilitation service efficiency and effectiveness is only one element in a complex equation embracing at least a dozen other major variables which can influence clients' success in obtaining employment. Given the parlous state of the British economy in recent years, a fairer evaluation might reflect on the extent to which extra staff effort and more effective programmes have been needed simply to mark time in an increasingly adverse labour market.

Looking ahead, while more work of the kind undertaken by the ERRC will undoubtedly be needed, there is a limit to what can be achieved by such means alone. Further improvement will also require that close attention is paid to the social and economic environment in which the service is provided, as well as to creating even more opportunities for ERC staff to develop and enhance their expertise, and to experiment with new methods and procedures. The latter, of course, will remain at the 'cutting edge' of employment rehabilitation long after researchers and administrators have retreated from the scene, and it is mainly in their hands that future delivery of an improved service lies.

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EIGHT

Measuring the outcome of employment rehabilitation

Stuart Cumella

MRC Social Psychiatry Unit, Worcester

Resettlement rates as measures of rehabilitation effectiveness

The resettlement rate is the main measure of rehabilitation outcome used by the British Manpower Services Commission (MSC) in evaluating the performance and effectiveness of its national network of Employment Rehabilitation Centres (ERCs). It is defined as the percentage of former clients who have started work or vocational training, or have been accepted for vocational training, by three months after completing their ERC course. However, the scope of this official definition must be qualified as follows. Firstly, calculation of the resettlement rate excludes former clients who began but did not complete their ERC course. Secondly, work, whatever its characteristics, is regarded as a successful outcome of rehabilitation. Thirdly, calculation of the resettlement rate does not take account of work which is started within three months of course completion but which is lost within a short space of time. Fourthly, no account is taken of whether former clients recorded as 'accepted for training' actually begin such courses; whether training courses begun are completed; or whether people who complete training after leaving ERC manage to find work.

All of these points raise questions about the validity of resettlement rates as a measure of rehabilitation outcome. Some information about its validity can be obtained from the results of a follow-up survey of ERC clients, conducted by the author while working at the Employment Rehabilitation Research Centre (ERRC), (Cumella, 1981; 1982). This study comprised the follow-up stage of a more general programme of research (described in the previous chapter) which looked at 307 clients attending eight different ERCs in 1977-8 and which aimed to evaluate the effectiveness of ERCs and gather information about the characteristics of their clients.

In the follow-up survey, the same sample were interviewed one year after they left the ERC. The response rate was 82 per cent. Almost all interviews were conducted by the author, using a semi- structured questionnaire piloted and developed for the survey. Interviews were usually in the respondents' own homes and, with their consent, were tape-recorded. The schedule dealt initially with respondents' most recent employment, and how they looked for work. Information was then obtained about health and disability, and problems with finance, housing, and other areas of life. Many of the responses included evaluations and interpretations by clients of their experiences since attending the ERC and of the services with which they had come in contact.

This research can shed some light on three of the main reasons for doubting the validity of resettlement rates as a measure of rehabilitation outcome. These are: firstly, whether job occupancy does indeed constitute a successful outcome of rehabilitation for former ERC clients; secondly, whether placement in work after leaving ERC necessarily involves prolonged job occupancy; and thirdly, whether beginning or being accepted for training after completing an ERC course is an accurate indicator either of the completion of training, or placement in work subsequently. These questions will be considered in turn.

Job occupancy

Numbers in or out of work

Interview data included information about the employment circumstances of the sample of former clients one year to the day after they left ERC. Forty-five per cent were in work. These included 42 per cent of former clients who were in full-time, open employment, a figure which excluded four per cent who were sick, but who reported that their job was being kept open for them should they return to health. A further one per cent of former clients were in part-time, open employment, with 'part-time' defined as 20 hours or less per week. The remaining two per cent were in sheltered work. This category included four respondents working for Remploy and one for a voluntary organisation. All five worked full-time and received a wage. It is possible that a number of former clients included in the category of 'full-time open employment' may have been working in a sheltered occupation privately arranged by their employer.

The remaining 55 per cent of former clients included four per cent on full-time vocational training courses and three per cent on MSC temporary employment schemes (including one respondent who returned to ERC). They also included 29 per cent who were unemployed, including all former clients registered at Jobcentres plus those officially regarded as sick who reported that they were actively seeking work, and a further one per cent in occupational centres who were paid very small amounts for their work, such that they were still able to draw Supplementary Benefit. Finally, there were 17 per cent who defined themselves as being unable to work, or to look for work, because of sickness and a further one per cent who were out of the labour market for reasons other than sickness or attendance at occupational centres.

The majority of the 45 per cent who were employed one year after leaving ERC were in productive rather than service industries, and in work within these industries that was predominantly manual. Using the Standard

Industrial Classification of 1968, 54 per cent of respondents were working in manufacturing industries and a further ten per cent in the construction industry. Altogether, almost two thirds (64 per cent) were in productive industries, compared with 34 per cent in the service sector and three per cent in agriculture. A classification of jobs by socio-economic group showed that all but ten per cent were manual occupations. In comparison with the general population of British employees in employment, former ERC clients in work therefore are more likely to be in manufacturing industry, less likely to be employed in the service sector, more likely to be manual workers, and more likely to be in semi-skilled occupations.

Job satisfaction

Former ERC clients in work one year after leaving ERC were asked: 'Would you say that, all in all, you are satisfied or dissatisfied with your present job?' Where respondents replied simply that they were 'satisfied' or 'dissatisfied', they were asked: 'Do you have any reservations about that, or are you completely satisfied/dissatisfied?' Further questions were then asked to find reasons for satisfaction or dissatisfaction at work. Forty-two per cent of former clients in work a year after leaving ERC reported that they were satisfied with their jobs, and expressed no dissatisfaction. In contrast, 26 per cent said they were dissatisfied with their work, and could describe no features of their job with which they were content. These figures suggest a somewhat lower level of job satisfaction than that found in other surveys. For instance, the 1978 General Household Survey (OPCS, 1980) reported that 45 per cent of people in work were 'very satisfied' with their job, and that a further 39 per cent were 'fairly satisfied'. Only 12 per cent claimed to be either 'rather' or 'very dissatisfied'. This difference may be accounted for in part by the high proportion of former ERC clients employed in manual jobs in manufacturing industry. Such occupations typically have lower than average levels of job satisfaction (Blauner, 1960).

It is unlikely that the respondents had any absolute scale of job satisfaction in their minds. Rather, they tended to compare their job with the range of real alternatives for them. For many older, unskilled or disabled workers, the alternative to their job was often no work at all. This is evident from the reasons given by respondents for satisfaction or dissatisfaction with their work. The most common reason given for job satisfaction was because 'any job is better than no job'. Other reasons related to the characteristics of the job itself. These included the company of workmates, the absence of immediate supervision, or because the work was outdoors. Reasons given for dissatisfaction included low wages, the boredom of the work, poor working conditions, and because the work was degrading or below the respondent's own assessment of his capabilities. Two other reasons related more specifically to the match between disability and job characteristics. These included job satisfaction because the job was within their physical and mental abilities (with an implied contrast with the strain experienced in previous employment), and corresponding dissatisfaction when the job was unsuited to their disability and produced strain.

Pay and conditions of employment

The survey also provided information about the pay and conditions of former ERC clients in employment. Almost all (92 per cent) former clients in work were wage-earners. Only five per cent were salaried and the remaining three per cent were self-employed. Eighty-four per cent were on day work, four per cent on night shift, and the remaining 12 per cent on alternating shift systems. The median number of hours worked in a week was 40, and 62 per cent worked between 36 and 40 hours a week inclusive. There was, however, a notable minority of respondents (12 per cent) who worked 51 hours a week or more.

Average earnings were low. The mean gross weekly income was 55 pounds. The sample did, however, include a number of women and young people, whose earnings are traditionally lower than average. Among adult males aged 21 years or more, the average gross earnings per week was 59 pounds. This compares with a national weekly average wage of 100 pounds for this group in the employed labour force in Great Britain in 1978.

Job strain

Respondents were also asked if they experienced any stresses or strains in their job. Fifty-one per cent of former clients in work a year after leaving ERC replied that this was so. Estimating the severity of strain is notoriously difficult, although there has been much research into psychological responses to stress (eg. Cox, 1978). But self- reports of stress probably over-estimate its severity in terms of impact on people's ability to cope with the day-to-day routines of their work (Cooper and Payne, 1978).

Respondents described three main types of strain. Fifty-eight per cent of those reporting some strain from their work said that they had either pain in some part of the body or, in two cases, a general sense of exhaustion at the end of a shift. All former clients in this group were in manual work, and the majority (70 per cent) had musculoskeletal impairments. The most common external stress was prolonged standing (24 per cent of the group), but a large number (32 per cent) attributed the pain directly to their impairment. In other words, pain accompanied most activities undertaken by this group whether at work or in their own time.

The second type of strain was boredom. Former clients in this group (18 per cent of all respondents reporting strain from work) were mainly employed in repetitive and unskilled manual work. However, one individual was employed by a security firm to spend nights in their office to watch for (very infrequent) alarm calls, while another respondent had been re-employed by a construction company after an industrial accident, was severely disabled, and appeared to have no real tasks to perform.

The third type of strain was from pressure of work or other characteristics of the job. While half of the respondents with this type of strain reported that the main difficulty was in keeping up with the pace of work, individual respondents also mentioned such features of the job as the unfriendliness of fellow workers, responsibility for handling large sums of cash, the amount of learning involved in the job, the need to meet deadlines, and the general pressures involved in sales work. There were also two respondents whose strain appeared to derive more from a general anxiety state than from any specific features of the job itself. Only two of the respondents who reported strain because of pressure of work were in assembly work, and none were in machine paced jobs. Indeed, 44 per cent of former clients with this type of strain were in non-manual occupations one year after leaving ERC. The most common impairments were psychiatric, coronary, musculoskeletal, and epilepsy.

One measure of strain at work is absenteeism because of sickness. Different respondents had been in work for varying lengths of time during the year after they left ERC, and hence sickness absence has been calculated as a percentage of ordinary working days in which the respondent was employed. Fifty-seven per cent of former clients in work a year after leaving ERC had not lost any time off work because of sickness. A further 19 per cent had taken some days off work, but altogether these amounted to no more than 5 per cent of the days in which they were employed. Fourteen per cent lost between 5 and 10 per cent of working days, while 11 per cent lost more than one in ten working days because of sickness. The highest levels of sickness absence were found among respondents who experienced strain at work. For instance, 81 per cent of those who were absent for more than one working day in 20 reported strain in the job they held at the time. Respondents who both experienced strain at work and who had high levels of absenteeism therefore constitute 20 per cent of former clients in work a year after leaving ERC. This group is composed mainly of clients with musculoskeletal impairments or with histories of psychiatric disorder.

One way of overcoming strain at work is by adapting the job itself. Twenty per cent of former clients in work a year after leaving ERC said that their employers had modified their job to reduce strain. The adaptations described by respondents were all of a straightforward kind. The most common was a move onto less strenuous work. Such redeployment was particularly common among the small number of respondents who returned to their former employers after leaving ERC. Other adaptations mentioned were allowing the respondent to sit down at his job; enabling him to take a short break from work when he became exhausted or in pain; moving him to a workplace closer to his home to reduce travel time; and providing general advice and guidance as a means of reducing stress. Individual respondents also described how their firm had reduced dampness in the workplace; had organised help for the respondent in lifting heavy loads; and had provided transport to work.

The relationship between job adaptation and the strain respondents experienced at work was also studied. For eight per cent of former clients in work a year after leaving ERC job adaptations had succeeded in either overcoming or avoiding any job strain, but 12 per cent reported that, despite job adaptations, they still experienced some strain at work. Responses from the group whose jobs had been adapted indicated that such adaptations had ameliorated strain to the extent that it enabled them to remain in employment. No respondents complained that the adaptations had not made any difference to the strain they experienced.

Forty-one per cent of former clients reported neither strain at work nor any adaptations to their job. However, 39 per cent of former clients who were still in work a year after leaving ERC did report strain at work but said that no adaptations had been made to their job to reduce it. This did not necessarily reflect a lack of concern by the employer. Twenty-two per cent of respondents in this group reported that it was impossible to make their job any simpler: strain was simply the price they paid for being in work. A further three individuals said that no adaptations had been made because they had not told their employer about their disability and hence the pain they experienced in doing their job. A more detailed case-by-case comparison of adaptations and strain shows that adaptations were made almost entirely to deal with physical strain. None of the respondents experiencing stress from boredom had their jobs enriched, while only two of the respondents who found their work stressful in other ways had received any help from their employers. There was no significant difference between the private and public sectors of employment in the proportion of former clients experiencing strain at work.

Job turnover

While 45 per cent were in work one year after leaving ERC, 63 per cent had been employed at some time during that year. At first sight, this would seem to indicate that at least 18 per cent of former clients had been involved in some job turnover. In fact, no less than 31 per cent either had more than one job during the year or had obtained only one job but lost it by the year's end. Of the 63 per cent who found their first job after leaving ERC, only just over half (32 per cent of all former clients) were still in the same job by a year after leaving ERC. The remainder included 17 per cent of former clients who had more than one job during the year, and 14 per cent who lost their first job and were still not in work by the end of the year. Of the 17 per cent who had more than one job, three-quarters were still in work a year after leaving ERC, with the remainder unemployed.

This presents a picture of only limited stability of employment among former clients, with a relatively high proportion of first jobs being lost before the end of the year. A number of these jobs appear to have been of quite short duration. Indeed, 15 per cent of first jobs after leaving ERC lasted six weeks or less and were not followed immediately by any subsequent employment. In all, ten per cent of former clients had such unsustained first jobs. High as these figures may appear, they reveal less turnover than that found among users of Jobcentres as a whole. A study by Ford (1978) of people submitted for vacancies by two Jobcentres, found that, among those who actually began work, some 18 per cent had left their jobs by five weeks, and 25 per cent had done so by nine weeks after starting.

Table 8:1 shows the reasons given by respondents for leaving or losing jobs in the year after leaving ERC. The table includes as 'jobs lost' those in which respondents reported a prolonged absence from work because of sickness and where they had not returned to work by the date of the interview. It can be seen that, according to respondents, only 13 per cent of jobs were lost because the respondent was sacked, while 48 per cent of respondents left their jobs of their own accord.

Reports by people as to whether they have been sacked or have left their job voluntarily are, however, notoriously unreliable, and some of the respondents who claimed to have left jobs of their own accord may in fact have had little real prospect of continuing in that work. This is evident when the reasons for leaving jobs are considered in greater detail. According to respondents, 44 per cent of jobs were lost during the year after leaving ERC because of problems with their health and/or disability. Among this group, inability to cope, usually because of excessive pain, was the main reason for dismissal or leaving employment in 44 per cent of all cases. For a further 23 per cent of such cases, deterioration in health caused by job strain was the main reason, and another 12 per cent did so because of the onset of a new disability.

Table 8:1 Reasons for job loss

Reason	%
Left on own account because of sickness and/or disability	16
Dismissed because of sickness and/or disability	5
Still employed but off work through sickness	7
Job lost otherwise because of sickness and/or disability	15
Temporary employment contract ended	9
Redundancy	4
Resigned to commence training course	4
Resigned for other reasons	32
Dismissed for other reasons	8
Total	100*

*Base: all (98) jobs lost be respondents during a period of one year after leaving ERC

Among the remainder, there were individual respondents who lost their jobs because the employer found out about their disability, which had not been disclosed on appointment; because of difficulties of access after the employer moved premises; and because one respondent who was working as a light labourer refused to do heavier manual work because he feared it would worsen his shoulder injury, and was sacked.

Training

Twenty-nine per cent of respondents were recommended for some form of training course in ERC final reports. This figure included those proposed for training in basic skills such as literacy and numeracy, but excluded recommendations for training on the job by employers. A year later, however, only half this number (14 per cent of all former clients) had completed training, were still on training courses, or were waiting to begin training. There were two reasons for this shortfall. Firstly, 11 per cent of former clients who were recommended for training never started a training course. Secondly, a further five per cent who began training either failed their course or had their courses suspended. These two groups will be considered in detail.

The 11 per cent in the first group who were recommended for training but failed to begin any course comprised 26 respondents. Of these, six had found a job by the time a place became available on the appropriate training course, and were reluctant to lose it in exchange for a course with no guarantee of work at its end. Two of these six respondents had remained unemployed after leaving ERC in the expectation of an early start to training, but had eventually found work after several months of waiting without hearing word of their course. Another four respondents were unable to begin training because they were sick or otherwise unfit by the time the course became available. The remaining 16 respondents appear to have failed to commence training because of problems of liaison between ERC, their Disablement Resettlement Officer (DRO) and/or themselves. These liaison problems were quite varied. One respondent disagreed with the recommendation itself because no work of the kind proposed was available in his home area: in his opinion there was therefore little point in training for such an occupation. Another former client was recommended for a course in general fitting but failed the skillcentre medical examination because of his deafness. Another four attributed failures of communication directly to the incompetence, in their eyes, of their local DRO. Finally, ten respondents who had been recommended for vocational training by the ERC appeared unaware of this fact (one of these expressed considerable anger because he believed that the ERC had not recommended training). Since ERC final reports are not given to clients but only summarised by the ERC resettlement officer or the local DRO, there would seem to be room for this kind of misunderstanding; but it is also possible that DROs may not inform their clients about a training recommendation if they are sceptical of the client's ability to complete training, or they consider that the client appears a good placing prospect without training.

The five per cent of former clients in the second group included ten respondents who failed their training courses and two who had their courses suspended. The ten who failed included only one who lasted the course but did not pass the final examination. The remainder terminated their training prematurely because of health (three respondents); to look after family (one respondent); or because they could not keep up with the pace of work (four respondents). There was, however, one former client who failed in name only, having left a skillcentre course in hairdressing a few weeks before completion to take up an offer of a job in a local salon. Both respondents who had their training suspended (in one case because of the lack of an instructor), had assurances that they could resume training, although they were uncertain whether they would do so.

Table 8:2 Training courses completed and type of employment found

Training course	Employment circumstances one year after ERC
Industrial electronics	Packer
Industrial electronics	Car-cleaner
Motor vehicle repair	Motor vehicle repair work
Motor vehicle repair	Unemployed
Heavy vehicle repair	Heavy vehicle repair work
Carpentry and joinery	Carpenter
Centre-lathe turning	Unemployed
Capstan-setter-operating	Swimming baths attendant
Hairdressing	Hairdressing
Hairdressing	Sick
Book-keeping/accounts	Unemployed
Book-keeping/accounts	Sick
Clerical/commercial	Hospital porter
Typing	Typist
Typing	Full time student in non-vocational degree course
Preparatory course	Sick
Instrument fitting	Engraving
Electronic wiring	Bakery worker

Base: 18 former ERC clients who completed training courses within a year of leaving employment rehabilitation

Although 18 per cent of former clients began training during the year after leaving ERC, only eight per cent had completed this training by the year's end. The type of course completed is shown in Table 8:2. Eleven of these courses were at skillcentres, one at a residential training college, and six at colleges of further education. Table 8:3 shows the employment circumstances of former clients a year after they left ERC, according to the nature of their contact with vocational training courses. Sixty-one per cent of those who completed training were in employment, while 17 per cent were unemployed, and 22 per cent were out of the labour market. These figures can be compared with official MSC follow-up returns after training for 1978-79, which show that 71 per cent of able-bodied trainees and 62 per cent of disabled people had got a job three months after completing training. Lower proportions were in work among those former clients whose training was either suspended or terminated prematurely. Thirty-eight per cent of this group were in work a year after leaving ERC. This group appears to have fared worse in terms of getting a job than those former clients who had no contact with training services.

Table 8:2 also shows the kind of work found by those respondents who did complete training by one year after leaving ERC. It can be seen that 11 out of the 18 who completed their training were in work at that time, while three were unemployed, and four were out of the labour market. Among the 11 in work, only five were in jobs appropriate to their training. The remaining six included both former clients who were trained in industrial electronics. Comparing the kinds of work found after training with the number of former clients recommended for training gives some impression of the overall impact of vocational training on resettlement. A year after leaving ERC, only two per cent of former clients had both completed training and were in appropriate occupations. A further six per cent were either in or awaiting training, but it is possible that some of these may also experience similar difficulties in finding appropriate work after they complete their courses.

Appropriateness of resettlement rates as outcome measures

These results appear to confirm the previously expressed doubts about the validity of the resettlement rate as a measure of rehabilitation outcome. Three specific observations can be made. Firstly, substantial minorities of former clients reported that their jobs were a strain, or that they were dissatisfied with their work. This, and the low average earnings and high levels of absenteeism from work because of sickness, should indicate caution in using job occupancy in an undifferentiated way as a measure of successful resettlement. Secondly, the rate of job turnover, particularly in the first few weeks of work, suggests that placement in work alone may not always be equivalent to resettlement. Instead, some account needs to be taken of the duration of the job. Thirdly, the proportion of former clients who begin training but failed to complete their course, or who complete training but failed to find work suggests that beginning

Table 8:3 Training and employment

Employment circumstances one year after ERC	Training outcome					
	Completed training	Still training	Training prematurely terminated or suspended	Awaiting training	Not trained	Total
In work	61		38	50	46	55
MSC employment		100			4	7
Unemployed	17		54	50	29	29
Out of labour market	22		8		21	19

*Base: all (307) sample members

or being accepted for training cannot by itself be regarded as a mark of rehabilitation success. For this reason, it is misleading to add without qualification the proportion of clients who have begun or who have been accepted for training to the proportion already in work to produce a resettlement rate.

In addition to these conclusions from the survey, it is possible to identify other problems that arise if the resettlement rate is used as a measure of rehabilitation outcome. One is the possibility that open employment may not be an appropriate outcome for all clients. If an ERC recommended that a client should be placed in sheltered work, an adult training centre or a diversionary work centre, any such placement would not count as resettlement, even though it might represent the highest level at which the client can function and reflect an improvement compared to his abilities before admission to ERC.

Another problem arises from the fact that resettlement rates fluctuate with the national level of unemployment (Sheikh et al, 1980). This means that changes in resettlement patterns can not be ascribed with much confidence to changes in the effectiveness of ERCs. Indeed, the last few years have seen a major decline in the aggregate resettlement rate, corresponding to major increases in the level of unemployment nationally. Yet, in this time, there has also been a noticeable improvement in the service given by ERCs to individual clients.

A further problem in using resettlement rates as outcome measures derives from the fact that placement of former ERC clients in work or acceptance of them for training courses are not the direct responsibility of ERCs, but of DROs and training services respectively. On the other hand, there are no statistics collected that measure directly the nature of ERCs' assessments of their clients, nor the degree to which ERC staff succeed in improving clients' employability. There is thus the remarkable anomaly that ERCs' success is judged in terms of activities that are the immediate responsibility of other MSC services, while there is no official measure of the work with clients for which ERCs are themselves directly responsible. As a result, a cut in the DRO service or a reduction in the number of training places open to disabled people might register as a decline in the success of ERCs, even though no change might have taken place in the effectiveness of their day-to-day work with their clientele.

Resettlement rates, therefore, have limitations as a criterion by which to judge the effectiveness of ERCs. Yet this is not to argue against the importance of returning disabled people to suitable work, nor against the need to collect information about the pattern of resettlement after ERC. Rather, the resettlement of the disabled should be seen as being the collective responsibility of all employment services provided for disabled people. To measure the effectiveness of these services would require two sets of measures: the first to provide information about employment services as a whole in placing disabled people in the highest level of employment of which they are capable; and the second to provide information to staff in individual units about the effectiveness of their day-to-day work with clients.

The first set of measures would be similar in some respects to those in operation in the USA. Information would be recorded about all disabled people in contact with employment services, and the kind of services they were receiving at any one time. When a client lost contact with employment services, the reason for case closure would also be recorded. A successful closure would be defined as one in which the client was in employment for a specified number of days, and was in work which was not harmful to his health or disability. Employment would be defined to include sheltered work, attendance at a day centre, or even work in the client's own home, should this be deemed the level of employment most appropriate for that particular client. The overall success of the service would be indicated by proportion of closures which were successful, and the average cost per successful case closure. If information about clients' level of welfare benefits was recorded, it would also be possible to calculate the overall cost- effectiveness of rehabilitating disabled people. Of course, a system like the one outlined here would still provide information about the flow of clients between DROs, ERCs, training, and the various forms of MSC temporary employment, and the proportion of former clients who move directly into employment after completing their course.

The second set of measures already exist to some degree within MSC. For instance, a specific objective of skillcentres is to raise the performance of individual trainees to what is deemed an appropriate level of skill. Within ERCs there is no equivalent: instead, it is recognised that clients' needs and abilities may be highly differentiated, and that no overall level of performance or skill can indicate success for each and every client. But ERCs have no tradition of specifying detailed objectives for individual clients, nor of measuring the degree to which these are attained. The consequences of this include a limitation on the feedback to both staff and clients about the latter's performance and the lack of any overall information about the degree to which clients are helped effectively by the centre in its day-to-day work with them. Information of this kind can only really be obtained if ERC staff set objectives for individual clients that are considerably more specific than those usually included in any rehabilitation plan, for example, a speed and standard of work to be attained by the client in completing a particular work sample. Alternatively, some objectives might specify an improvement in behaviour, such as a reduction in late attendances.

Although the use of specific objectives for clients could prove a useful measure of success at a centre level, it is more difficult to see how data of this kind could be aggregated to produce figures for ERCs as a whole. On the other hand, policy makers might find it useful to know the kinds of problems ERCs diagnose among their clientele, and the specialist ERC services which are called upon most frequently to help overcome these problems. One way of obtaining this information could be to adapt the case review system, developed by Goldberg for local authority social services. This comprises a standard case review form which is completed by social workers when they come to close a case or at periodic reviews of those cases which they keep open. Evaluations of the case review system in operation have shown that it has had a major effect in stimulating social workers to draw up case plans for individual clients and to carry out periodic reviews of existing cases (Goldberg and Warburton, 1980).

One possible version of a case review form, modified for ERC use, has been developed (Cumella, 1982). Using specific objectives of this kind should make it possible for ERC staff to identify whether or not they are succeeding in improving the performance of individual clients and/or accurately assessing their performance or potential. By reviewing the degree to which groups of clients attained the objectives specified in rehabilitation plans, ERC staff could begin to identify those areas of work in which centres can most effectively help their clientele.

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NINE

A follow-up of work evaluation clients

Juhani Karjula

Rehabilitation Foundation, Helsinki

Introduction

Rehabilitation evaluation at the Rehabilitation Foundation in Helsinki is aimed at the assessment of the client's ability to work and his or her potential to benefit from rehabilitation. The evaluation team consists of a physician, a social worker and a psychologist, although other experts may also be consulted when necessary. The outcome of the work evaluation process is a rehabilitation plan. Its realization depends on other rehabilitation services or organizations. This chapter reports a follow-up study that was undertaken to assess the outcome of rehabilitation, and factors predicting it.

Method

A follow-up questionnaire was sent to the clients seen during 1977-78 some 8-12 months after the evaluation phase. The respondents (N = 593) were aged 14-59 years (mean 34 years), of whom 65 per cent were men. The most common main diagnostic groups were diseases of the musculoskeletal system (22 per cent), mental disorders (19 per cent), and diseases of the nervous system (15 per cent).

The data examined included information gathered during the evaluation phase, the team's evaluations, and the follow-up variables. The outcome of vocational rehabilitation was classified on the basis of employment status as follows:-

1. positive outcome: employed or in vocational training;
2. intermediate group: domestic work, sheltered work, in vocational rehabilitation other than training, or unemployed;
3. negative outcome: unable to work.

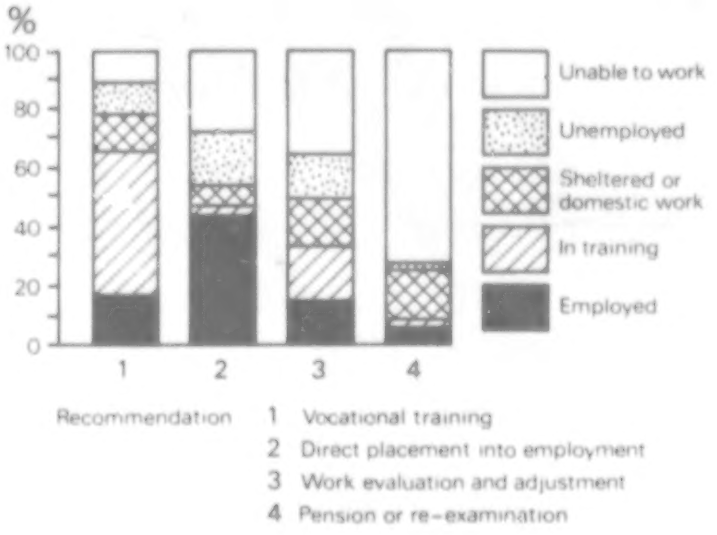
Other outcome variables, including the client's capacity for and potential to engage in other everyday activities (eg domestic activities, refreshing leisure pursuits and social interaction with others) were also assessed.

Results and discussion

At follow-up, 21 per cent were employed, 15 per cent were in vocational training, 11 per cent were unemployed, and 7 per cent were doing domestic work. Forty per cent considered themselves unable to work; 35 per cent had been granted a disability pension.

The client's age and motivation for vocational rehabilitation were among the factors that were most strongly predictive of outcome. Positive outcome was most common among those recommended to vocational training. Only a few of those who had been recommended a disability pension were employed or in training at the follow-up (Figure 5).

Figure 5 Type of vocational recommendation and employment status at follow-up

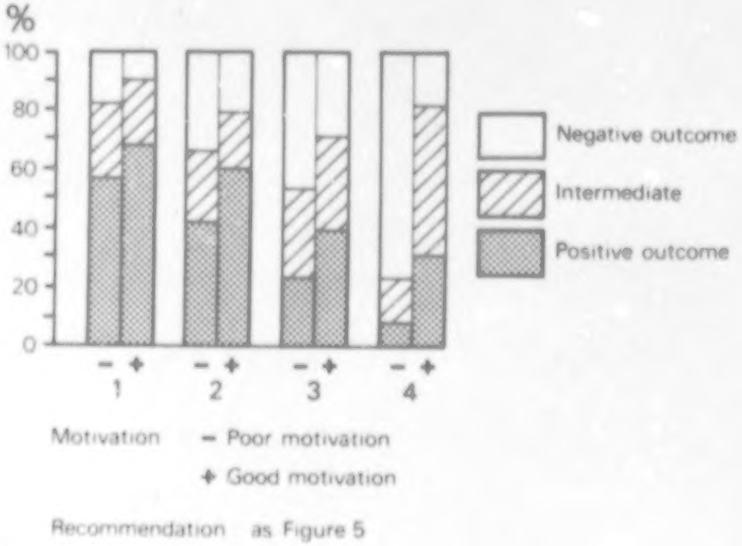


Age (Table 9:1) and the level of motivation as rated by a psychologist (Figure 6) were clearly related to the quality of vocational recommendation, and also to the outcome of rehabilitation, when the effect of the recommendation was eliminated.

Table 9:1 Mean age for three outcome groups and four types of recommendation

Recommendation	Positive	Outcome Intermediate	Negative	All subjects
Vocational training	24	28	32	26
Direct work placement	37	41	44	40
Work evaluation etc	24	29	33	29
Pension, re-examination	38	40	43	43

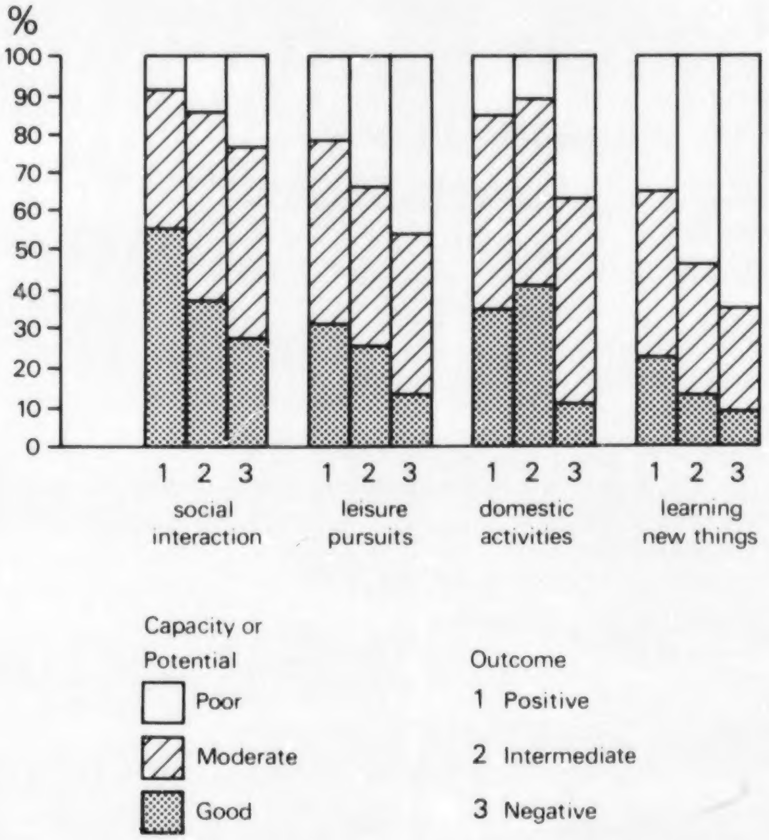
Figure 6 Motivation and rehabilitation outcome



Other psychological ratings (eg those of cognitive capacity and psychic energy) were also related to the outcome of rehabilitation. However, when the effect of vocational rehabilitation was eliminated, the effect of these variables was not significant.

Self-rated assessments of capacity for and potential to engage in other everyday activities correlated significantly with the outcome of vocational rehabilitation. Those who were unable to work at the follow-up also reported limited capacity for and potential to engage in such non-work activities (Figure 7).

Figure 7 Capacity for and potential to engage in everyday activities in three outcome groups



Conclusions

These results suggest that motivational factors may strongly affect the outcome of rehabilitation. They also suggest that employment status as a rehabilitation outcome measure may correlate significantly with other measures of clients' capacity for, and potential to engage in, other domestic, leisure and social activities.

TEN

Appropriate training and job experience produces qualified staff

James A Stone and Jane H Binford

Division of Community Services for Mental Retardation, Kentucky

Introduction

In 1977, the Kentucky Association for Retarded Citizens (KARC) brought a legal suit against the Secretary of Human Resources (KARC versus Conn and the Commonwealth of Kentucky, 1980) to halt plans to construct a new institution for people with mental retardation. The Commonwealth won the decision in late 1979. Nevertheless, in the fall of 1980, the Division of Community Services for Mental Retardation (a State agency in the Kentucky Department for Human Resources) began the first stage of a programme to reduce the number of residents in the state owned institutions for people with mental retardation. Nine out of the fifteen regional mental health/mental retardation boards, the major system of community-based services in Kentucky, were awarded contracts to provide residential, vocational, educational and other support services. It was anticipated that, over a two year span, 212 people were to be returned to communities across the state. The needs of these individuals, and other people living in the community, influenced the system for delivery of services within the community by drawing attention to a previously unacknowledged shortage of trained staff available to provide direct services to people handicapped by mental retardation.

In response to this shortage of trained staff available to provide direct services to these individuals, the Division of Community Services for Mental Retardation submitted a project application to the Kentucky Bureau for Manpower Services for CETA Title II B Work Experience funds (Department of Labor, 1980), proposing a state-wide network of training using work experience funds to pay wages of eligible participants as direct service providers. A review of the literature and a survey of other states and the regional office of the Department of Labor in Atlanta produced no information on work experience projects of this type. An additional information search conducted through the National Rehabilitation Information Center in Washington DC and the NASA/University of Kentucky Technology Applications Programs, accessing computer data, again found no other project using this specific funding source to train personnel to work directly with people with mental retardation in the community. The project proposed to employ and train 200 people eligible to participate in a work experience programme to provide such a service.

Project objectives

The primary objectives of the project were:-

> 1. To provide a pool of trained staff to work with people with mental retardation in residential, educational, vocational and support services;
> 2. To train local community people with little or no work experience to use new skills and abilities to qualify for permanent jobs in community-based services;
> 3. To change agency attitudes or expectations about the abilities of work experience trainees;
> 4. To change the expectations of the local work experience trainees toward people handicapped by mental retardation.

Development of the training programme

To facilitate the establishment of a data-based, state-wide network of systematic training, and to meet the training requirements contained in the proposal and contract, parts of the Value-Based Skills (VBS) Training method (Meyer Children's Rehabilitation Institute, 1980) were adopted as the basis of a standard curriculum by the Division of Community Services for Mental Retardation. Topics covered by the VBS include foundation principles of the VBS system; introduction to individual programme planning; setting goals; writing behavioural objectives and measuring behaviour; introduction to assessment; achieving goals and objectives and introduction to team planning. Two additional VBS modules on (a) positioning, turning and transferring and (b) medication training were not used during these training sessions.

The modular format of the Value-Based Service System is reflected in the training manuals for instructors and trainees. These materials are designed to be suitable for use in any setting where direct services are provided. Procedures to assess mastery of the content of each module are incorporated in the training manuals. All modules are designed for easy use by training or supervisory staff who have completed the VBS training system. The use of these materials is intended to assist the establishment of a monitoring system for a network of training, by providing a data-base for determining that their content has been mastered by participating staff.

Before the training programme commenced, the project trainer undertook an assessment of potential participants' needs, using a survey of 12 Mental Retardation/Developmental Disability (MR/DD) regional directors to determine areas of training need. Each regional director indicated that consistent, systematic training for direct service staff was needed and that they could conduct training in the VBS curriculum if their existing personnel were trained in its use. They also noted that the VBS curriculum did not include instruction on managing severe behaviour problems, legal rights of the handicapped, and guidance on policy and administrative regulations relating to direct service provision.

As a result of the needs assessment, a training schedule was developed which included the seven VBS modules; general first aid/medications; community advocacy and management of inappropriate or disruptive behaviour. This schedule was offered to three training groups from the 12 regions. Each region was requested to select for training two to four employees who were directly responsible for residential management and work experience management; since it was considered that direct service staff training would be disseminated faster through these personnel.

Module materials were distributed to participating staff before the training session so that they could become familiar with reading material and complete any accompanying exercises and questions. Familiarity with the materials allowed more workshop time for discussion of specific issues, in line with the VBS training format.

Eighty-five per cent of the first 46 participants to complete training on the first three modules considered that workshop objectives had been achieved. Additional comments referred favourably not only to physical arrangements (eg. workshop location and dissemination of material) but also to the benefits of interaction with other direct service staff. However, they stated that more discussion time was needed. Generally, they felt that the VBS trainer and materials presented a concise course, giving opportunity for both practical application and theoretical consideration - exactly what was needed by direct service staff in Kentucky.

Implementation of the programme

Overall responsibility for each programme serving people with mental retardation in the community falls to the regional board's MR/DD director. The CETA Work Experience project was therefore implemented in each region by the director and a work experience manager who had participated in the VBS training and who, in turn, adopted and conducted training programmes for participants in their region according to job and training needs.

Nine regional mental health/mental retardation boards were sub- contracted to train 200 people who were eligible to participate in a work experience programme. The regulations directing the use of CETA Title II B funds define 'work experience' as a short-term work assignment designed to enhance the employability of participants through development of good work habits and basic work skills. Participation in work experience is restricted by the regulations to individuals who have never worked; who have worked no more than three months in one regular job during the six months before enrolling in the programme; or who have a verifiable personal history which may limit their employment prospects.

Work experience trainees were required to spend at least 30 hours of training in the area of mental retardation and related services. After enrolment, initial training was based on the following syllabus:- history and perceptions of mental retardation; the principle of normalization, models of development and the philosophy of community-based services for the mentally retarded; measurement techniques for behaviour and growth; normal child behaviour; working with parents; medical needs; nutrition and dietary needs; cardiopulmonary resuscitation; first aid; money management and personal finance; home maintenance and self-help skills. In addition to initial training, each participant received no less than two hours per week of ongoing training provided by professional and administrative consultants in the field of mental retardation. Work experience and participant training were both provided on location in particular service settings.

The 200 programme participants were placed in positions in the following services: (a) 14 per cent in residential services which included group homes, supervised apartments, alternative living units and respite care services; (b) 37 per cent in educational services which included pre-school, early intervention/infant stimulation, day care and public school classroom; (c) 40 per cent in vocational services which included sheltered workshops and work activity centres; and (d) 9 per cent in support services which included case management, transportation, recreation/leisure and special services projects.

Evaluation of participants' progress were conducted at least every 60 days by supervisors and instructors to determine whether the participant should transfer to another activity, be placed in unsubsidised employment (if available), or remain on the work experience programme. Each participant was required to rotate to a different occupation every 60 calendar days. Those who were still on the work experience programme one week before the end of its 1,000 hour work limit, received intensified instruction in jobseeking skills and were directed to counselling and placement services during this final week.

Evaluation of the programme

Regional MR/DD directors, regional programme managers and work experience participants were surveyed at the end of three months using a 17 item, open-ended questionnaire to elicit their impressions on the value of the project.

MR/DD directors and programme managers were asked about the impact of the project on the community-based programme; the benefits and disadvantages experienced as a result of the project; and their expectations regarding the quality of the work performed by the trained participants.

Participants were asked if their attitude toward people with mental retardation had changed; if the training programme had been of benefit to them; and if they wanted to pursue a career in the field of mental retardation.

Questionnaires were returned by nine (100 per cent) MR/DD directors, 11 (100 per cent) programme managers and 230 (70 per cent) of the 329 work experience participants.

Directors' views

The nine MR/DD directors reported that the advantages of the work experience project were that it provided an opportunity to have more staff in direct service programmes; that it provided a pool of trained paraprofessionals to fill permanent positions, when available; and that it increased community awareness of services for people with mental retardation. The main disadvantages were the 'in-house' cost of administration; the federal regulations required to operate the project (eg. 60 day rotation, 1,000 hours work limitation and minimum wage); and the short time span of the project. The impact of the project on services in each region was also reported. It was considered to have improved services as a result of making additional staff available and to have improved awareness of community services. The ability to continue existing programmes or begin new ones was also valued. Six MR/DD directors reported favourable changes in their expectations of the quality of work performed by the participants and now viewed their work as an asset to the programme.

Managers' views

The 11 work experience programme managers were of the same opinion. The foremost advantage of the project was having more staff. Other major benefits cited were additional education and experience of working in community programmes for people with mental retardation and the creation of a pool of trained paraprofessionals for permanent jobs. The disadvantages were regulations, administrative costs and negative labelling of the programme by 'outsiders'. Managers also perceived a positive impact on services due to the availability of additional staff to help in both established and new programmes. Nine managers cited the quality of work and higher skill levels achieved by participants as reasons for changing their expectations about participants' performance.

Participants' views

Eighty-eight per cent of the 230 participants who responded to the questionnaire reported a change in their attitude toward people with mental retardation. The major change was better understanding of such persons, followed by learning to see handicapped individuals as valued persons with recognised abilities.

Ninety-eight per cent believed that work experience had been beneficial. The various reasons for this included gaining experience from job training (34 per cent); receiving training in a new field - mental retardation (36 per cent); opportunities to interact with other people (26 per cent) and being motivated to continue their education (2 per cent).

Seventy-one per cent were attracted by the idea of a career in direct services to people with mental retardation; 16 per cent were undecided and 13 per cent did not want a career in this field.

Conclusions

Survey results indicate that this project achieved its main objectives:-

1. A pool of trained personnel was created to fill direct service positions in community programs as demand dictated.
2. Local community residents were trained to develop new skills and abilities to work with people with mental retardation.
3. Attitudes of the MR/DD directors in six of the nine regions changed toward the work experience participants in a positive manner. The remaining three MR/DD directors had originally expressed positive attitudes toward the participants, acquired perhaps from experience with other programmes. Thus, all programme administrators had positive attitudes toward the participants.
4. Almost all survey respondents were convinced that participation in the programme had helped them to develop more favourable attitudes towards people with mental retardation.

Nine Kentucky regions participated in this project and by April, 1983 had trained 423 people to provide direct services to 1600 mentally retarded citizens in community-based programmes using CETA Work Experience Funds. All nine regions participated in Value-Based Skills Training Workshops and training programmes in areas related to mental retardation and CETA regulations.

During 1982-83, 187 work experience programme participants secured unsubsidised employment; 142 were referred back to local Manpower Services offices; and 94 continued training into the next fiscal year. A follow-up survey of those who obtained permanent positions revealed that 89 per cent were still employed six months to one year later. The majority of those not employed had lost their jobs as a result of lay-offs.

Eleven programme managers were employed to supervise the project at a local level. They were provided with technical assistance and support services by the staff of the Kentucky Division of Community Services for Mental Retardation.

This state-wide project has been successful in providing training, skills development and work experience to a group of individuals who previously did not have this opportunity. Administrative staff were able to train and educate new staff to work with people with mental retardation without having to expend their funds on salaries. Both the state and local communities benefitted from the project as a result of new awareness and education gained by the work experience participants. The average time from enrolment to job placement was 82 work days. The average cost of training a participant was 2,126 dollars, including wages and training costs. In addition to the work experience and training curriculum, supplemental behaviour modification training was provided for 50 of the participants during the last quarter of the year. The total cost of this project, which has achieved its main objectives and which has made a positive impact on the service delivery system in 66 local communities while also providing training and employment for 423 people, was 1,052,098 dollars.

Further development of the programme

This project is now continuing following the award of a further grant (in excess of 1,250,000 dollars) from the CETA Title II B Work Experience programme for federal fiscal year 1983-84.

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PART III

SOME CLINICAL PERSPECTIVES

Some clinical perspectives

Editorial commentary

The papers in the first two sections of this book have considered the employment problems of people with disabilities and the services which have been developed to deal with employment handicap. This part of the book contains some of the clinical papers presented at the First European Conference on Research in Rehabilitation which dealt with the return to work and work performance of people with disabilities.

The four papers cover three topics - back pain, hand injury and angina, which form only a small part of the spectrum of causes of physical disability. Studies of the epidemiology of disabling conditions, such as the survey by Harris et al (1971), showed that neurological problems were the principal cause of very severe disability, while, among the severely disabled, the largest group suffered from musculoskeletal disorders (635 per 100,000 population). Osteoarthritis and other causes of non-inflammatory arthritis were the main cause of musculoskeletal impairment while the effects of trauma produced an estimated frequency of 100 cases per 100,000. In the severely disabled group neurological disorders (mainly stroke) had a frequency of 256 per 100,000 and cardiorespiratory disorders 182 per 100,000. The majority of very severely disabled people in society are elderly and, of those below this age, only a minority are employed. The clinical conditions which we will be covering in this section produce substantial temporary impairment in those afflicted but, generally, the resulting disability is relatively small. Re-employment after hand injury, back pain or angina is usually one of the objectives of the patient's rehabilitation.

Back pain is a symptom and not a disease; it can be caused by a wide variety of physical problems. The great majority however are mechanical (that is to say the pain is worse on activity and improves with rest) and are usually caused by soft-tissue lesions associated with acute or chronic strains. These usually settle promptly with a short spell of rest and most sickness absences are less than a week. About a quarter of the episodes of back ache which are sufficiently severe to warrant medical attention are thought to be due to lesions of the intervertebral disc. These are more serious and, even in an uncomplicated case, may take six to twelve weeks to settle. If the prolapsed disc produces pressure on a nerve root then it may take longer to resolve and even then relief may be incomplete.

The relationship between back pain and occupation has been studied extensively (Anderson 1980). Jobs involving heavy muscular effort over long periods of time and sudden or unexpected movements in circumstances where the spinal muscles are untrained or unprepared are generally considered as likely causative factors in the onset of back pain in an industrial setting. Prolonged stooping or other awkward posture (including, possibly, sitting in unsuitable chairs) may well be a further factor in back pain occurring at work; Anderson (1980), however, feels that the evidence for this is less convincing. The reason of course is that people spend only a part of the day at work and it is possible that factors such as posture, which are operational throughout the day, may only become symptomatic when the person has to undertake more active physical effort than is usual. While it is easy to understand why heavy lifting jobs are associated with a high prevalence of disc disease, the time lost off work due to back ache is also high in jobs associated with sedentary work (Kelsey 1975). Back pain in nurses is often attributed to their occupation (for they do have awkward and heavy lifts of patients which cannot be avoided or prevented easily) yet the overall prevalence of time off work due to back ache is similar in teachers (Cust et al, 1972).

The effects of back ache are felt not only by the affected person and his family or even his employer, but also by society as a whole. The Cochrane Report (1977) indicated that about two per cent of the male population experience a spell of certified sickness incapacity because of back pain each year. They estimated that in 1977 back pain cost the community in Great Britain 220 million pounds in lost output alone; the social security system costs were estimated at 40 million pounds in sickness and invalidity benefit, while the cost to the National Health Service was more than 60 million pounds in drugs, investigations, surgery, etc. The cost of compensation for back pain arising in the course of employment is appreciable but difficult to quantify. In 1985 terms the overall cost is probably about 1 billion pounds.

Sickness absence due to back ache is usually fairly short-lived but the effects of chronic back ache require a small number of people to change their job or take premature retirement. For the majority of these people, the relationship between cause and effect is straightforward but there are a few who request a change of job because of 'back pain' when social or personal inadequacies are magnifying, if not directly causing, the complaint. A physical cause is of course much more acceptable socially in these circumstances. Natvig and Brevik presented a paper at the conference in which they examined 234 people admitted to the State Rehabilitation Institute in Oslo because of back pain. They were subjected to a very thorough medical and sociomedical examination, and followed-up for five to seven years. The follow-up study showed that non-medical factors such as intelligence, personality traits and age seemed to be the most important prognostic factors for their future employment.

In the paper by Glanville and Tebay (Chapter Fourteen) two aspects of the relationship between back pain and employment were studied. Firstly, the natural history of a carefully screened group of patients presenting for the first time with back pain and followed-up for about 10 years is presented. The difference between these people and those examined by Natvig and Brevik was that they were an unselected group and the prognosis for employment appeared to be very good in this more representative sample. This is in keeping with other studies which have shown that although back pain is responsible for substantial morbidity it is an uncommon cause of disability. It is perhaps also worth pointing out that these people did have the benefit of treatment in a unit where the clinical management was coordinated with employment and other relevant services.

The second aspect of the study reported by Glanville and Tebay was an attempt to examine the effect of training in handling. The Cochrane Report (1977) commented that instruction in manual handling and lifting techniques are widely believed to have prophylactic value, although there was no scientific evidence that it was effective in reducing the frequency or severity of back pain. It recommended that steps be taken to promote and facilitate controlled trials of this preventative measure which ought to be conducted primarily in working environments. The connection with the employee's sporting and other physical activities ought to be examined also. Many of these preconditions were met in the trial which Glanville and Tebay set out to undertake with the assistance of Janet Caldwell. Unfortunately, the design was such that firm conclusions could not be drawn. It is possible for example that the introduction of the *Health and Safety at Work Act* may have contributed as much to the improvement as the training in handling techniques. The incompleteness of the data is also a limitation. Nevertheless, it does highlight the fact that it is possible to attempt to study factors such as this, while also highlighting the need for very carefully controlled designs for trials of this kind.

Hand injury is another cause of morbidity but an uncommon cause of serious disablement. The two papers in this book present a number of important contrasts. Smith et al (Chapter Eleven) have examined the causes and consequences of hand injury presenting at an Accident and Emergency service in Edinburgh, a city with a relatively low level of industrial activity. Industrial injuries accounted for only a quarter of all hand injuries treated on an out-patient basis and a fifth of such injuries treated on an in-patient basis. The majority of hand injuries therefore appear to arise in the course of sporting, other recreational or domestic activities. Patients with more severe injuries were of course admitted to hospital. Unlike back pain, where a specific diagnosis can only be made infrequently, it is usually possible to define with a high degree of accuracy and precision the exact cause of physical dysfunction in the hand after injury. The effects of tendon injuries, nerve damage, etc are predictable in terms of impairment but the effect on function is less clear because of the development of complications such as infection, contractures, and psychological difficulties in a small proportion of cases. The study indicates that social problems in this group of patients were appreciable: a considerable amount of time was lost off work even with non-industrial hand injuries. The study by Smith et al did indicate that the great majority of hand injuries healed satisfactorily with relatively little need for active intervention or rehabilitation after the acute management. Natural healing processes and common sense are usually all that is required. The old Scottish aphorism that the best treatment for a hand injury is a pick and shovel may be true.

Of course, with the few severe hand injuries extensive medical care is required. The paper by Pieniazek (Chapter Twelve) describes the progress of a very large number of patients with severe hand injuries who underwent an intensive programme of physical rehabilitation. The health care system in Poland has led to the development of a small number of large centres which concentrate on specific problems and it would be difficult to find in other countries another series of patients as large as that described. Most of the readers of this book will have only a nodding acquaintance with the details of a hospital rehabilitation programme. The Polish study gives considerable insight into those aspects of management where most therapeutic effort was concentrated. Regrettably, little information is given in this paper on the circumstances in which these hand injuries occurred: for example, what steps are taken in Polish industry to prevent hand injuries? Results quoted for return to work after these severe injuries are remarkably good, but unfortunately information is lacking on the details of the policies for re-employment of disabled workers in Poland. It might be suspected that they are likely to be very different from the policies and practices found in Europe or North America. It is not always possible therefore to make direct comparisons between results from different countries. With such a large number of patients it would have been possible to mount controlled trials of one form of treatment versus another or of active treatment versus natural resolution. It is hoped that future studies from this Institute will consider the social context of their rehabilitation programme and try to set up appropriate controlled trials.

Heart disease is a common cause of death and disablement in western society. Ischaemic heart disease in particular strikes the population of working age. Scotland and Finland share the unenviable position of having the highest incidence of heart attacks in the world. The paper by Kallio presented at the conference considered return to work, quality of life and cost effectiveness as measures of outcome of rehabilitation after myocardial infarction. He reviewed the results of recent controlled studies of patients below the age of 65 with myocardial infarction which suggested that it may be possible to improve some aspects of 'quality of life' and return to work, but only in selected groups. He also tried to calculate the cost effectiveness of his management programme and, while not minimising the difficulty of such a calculation, claimed that those patients who did return to work paid back in taxes the costs of the comprehensive rehabilitation programme for all the patients seen in about one year.

It is clear that cardiac rehabilitation programmes are unlikely to prolong life after infarction or prevent its recurrence. It is also clear that the majority of patients after a heart attack do not need special help. Those who benefit most are patients suffering from anxiety traits. A heart attack is a life threatening event which naturally causes anxiety to the sufferer and his or her family when it occurs. This is appropriate and is called 'state anxiety'. The paper by Philip (Chapter Thirteen) is the only one in the book to examine in detail the contribution of psychological factors, in this case 'trait anxiety', to patients' subsequent performance. Many heart attacks occur without warning but in the majority of cases the myocardial infarction is preceded by a period of angina, or chest pain on exercise. Philip's study compared the progress of patients with and without antecedent angina in the year following the heart attack and he also considered the effect of angina on work. The demographic characteristics, severity of infarct and time spent in hospital were similar in the test and control populations. Furthermore, there was no difference between these groups in mortality or severe cardiac pathology one year after the myocardial infarction. However, there were significant differences in the recurrence of angina, the presence of significant psychiatric symptomatology and in the proportion of patients who were back at work. On each of these counts those patients who had experienced angina before their heart attack and who had reduced their workload before infarction had a poorer outcome than patients without antecedent angina or those who had continued to work in a normal way.

In this part of the book therefore some attention is paid to physical and, to a lesser extent, psychological factors in relation to medical and employment rehabilitation. The acute management of illness or injury can affect the way the patient behaves after the acute episode is over. How many patients have had their lives ruined over the years after suffering a heart attack because they were advised to "take it easy" Are we setting appropriate goals for our patients; in particular, is return to work the appropriate measure of outcome following illness or injury that it once was?

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J.H. and P.C.

ELEVEN

Causes and consequences of hand injury

Margaret E Smith

Rehabilitation Studies Unit, University of Edinburgh

Jeremy M Auchincloss, M Salman Ali and Longino Soto

Department of Orthopaedic Surgery, University of Edinburgh

Introduction

Injuries to the hand form an important part of the hospital accident and emergency service (Frazier et al., 1978; Brobäck et al., 1978). There is however surprisingly little information about the causes and socio-economic consequences of hand injury. Many studies have concentrated solely on industrial injury (Wilkes, 1956; Goldwyn and Day, 1969; Page, 1975), yet more comprehensive studies of hand injury have shown that less than half occur at work (Edwards, 1975; Johns, 1981). A series of prospective studies has been carried out in Edinburgh to find out where, when and how hand injuries happen, and to seek patients' views on the functional and socio-economic consequences of such injuries.

Patients and methods

A retrospective survey carried out in the two main accident and emergency departments in Edinburgh showed that, on average, 14 per cent of 1485 patients attended each week because of an injury to the hand. These were managed in one of three ways: 64 per cent were discharged, 31 per cent were managed as out-patients through a daily hand clinic and 5 per cent were admitted. Two separate prospective surveys were carried out of patients not immediately discharged from the two accident and emergency departments:-

A study of 236 out-patients (168 males and 68 females) referred to the daily hand clinic over three two- week periods in November 1980, February 1981 and June 1981.

A study of 122 in-patients (99 males and 23 females) admitted because of a hand injury in a six-month period from September 1981 to March 1982. The usual reason for admission was to undergo surgery.

A questionnaire was completed by the examining surgeon to record detailed clinical, demographic and socio-economic information. Six weeks after injury, all patients were asked to complete a postal questionnaire which sought information on residual problems relating to hand function, including time off work and loss of earnings. Replies were received from 222 (94 per cent) out-patients and 111 (91 per cent) in-patients.

Results

Place of injury

The highest proportion (39 per cent) of serious hand injuries requiring in-patient treatment, occurred in the home (Table 11:1). The most frequent cause of hand injury requiring out-patient management was sporting injuries and injuries at work accounted for less than 21 per cent of the combined totals. 'Road' injuries included falls, road traffic accidents and violence. 'Recreation' was a euphemism for a fight in a public house.

Table 11:1 Place of injury

	Out-patients		In-patients	
Place	N	%	N	%
Home	54	23	48	39
Work	51	21	33	27
Sport	71	30	10	8
Road	35	15	23	19
Recreation	11	5	8	7
Other	14	6		
Total	236	100	122	100

Cause of injury

In the majority of cases, the hand was either cut, crushed or injured in a fall. Of 99 deep cuts, 44 had been caused by broken glass. Half of these were accidental and the remainder due to violence involving either a drinking glass (14) or plate glass windows (8). Accidents at work while using knives, saws or chisels accounted for a further 20 wounds, and 31 accidents in the home were caused by cutting the hand while using knives or shears (23) can openers (5) electric saws (3) or other sharp objects(4).

Eighty-four injuries resulted from falls, excluding falls in active sport. The main causes were falling off a ladder at work (16) or at home (10); tripping at home (17) or at work (5); falling down stairs (6) or on the pavement (14), falling off a motorcycle or pedal cycle (15) or in a bus (3).

Of 77 crush injuries, 41 happened at work. Only eight of these injuries involved direct contact with machinery. More often fingers were crushed while loading or moving heavy objects (13) or by objects falling on the hand (15). Twenty-four crush injuries were caused by doors or windows, including car doors. Seven crush injuries involved motorcycles, four of them while repairing the machine.

Hand injuries at sport

Of 81 sport injuries, the majority happened at rugby (22), football (17), ski-ing (17) or basketball (6). The remaining 19 occurred in a wide variety of sports including boxing, karate, roller skating, riding, cricket, squash and gymnastics. Most of these injuries were treated on an out- patient basis, the exceptions being seven ski-ing, two rugby and one football injury.

Hand injuries related to alcohol

Ten out-patients (4 per cent) and 20 in-patients (16 per cent) reported that they had been drinking heavily at the time of the accident. Thirteen of these accidents had occurred in the home; the remainder were during street fights or in public houses. Most of the injuries were cuts (17) or fractures (10), and the majority (24) occurred in the late evening or after midnight on Fridays (8), Saturdays (8) and Sundays (8). Eighteen were employed and six unemployed. Nine reported functional problems six weeks after injury; four were still off work, and two had lost their jobs.

Time of accident

Injuries occurred fairly evenly throughout the seven days of the week. They were more frequent in the afternoon and evening than in the morning (Table

11:2). The median time of injury for out-patients was 3 pm and for in-patients, 4 pm. Sport injuries were most frequent in the afternoon, injuries at home occurred most often in the evening, and injuries at work were distributed fairly evenly throughout working hours.

Table 11:2 Time of day of injury

	Out-patients		In-patients	
	N	%	N	%
2400-0800 hours	7	3	13	11
0800-1200 hours	36	19	25	20
1200-1600 hours	85	36	35	29
1600-2400 hours	80	34	46	38
Not known	28	12	3	2
Total	236	100	122	100

Employment

Of the total of 358 patients, 225 (63 per cent) were employed, 71 (20 per cent) were students, 28 (8 per cent) were unemployed seeking work, and the remaining 34 (9 per cent) were housewives or retired. Of those in employment, 53 per cent were manual workers engaged in mining, road haulage, engineering, motor mechanics and catering.

Consequences of injury

Time off work

Of 149 out-patients and 76 in-patients who were employed, 54 per cent and 93 per cent respectively were off work following their injuries. The mean number of working days lost for out-patients was 14.7 ± 13.6 (SD) compared to 36.6 ± 17.0 (SD) for in-patients. Six weeks after injury, 92 per cent of out-patients and 43 per cent of in-patients were back at work. More manual workers were off work, and were on average off longer than non-manual workers. There were no major differences in the length of time off work when related to the place of injury, but for out-patients the mean time off work of 23 days following motorcycle accidents was longer than for injuries at home (16 days), work (14 days), or sport (15 days).

Loss of income

Two-thirds of those who were off work were affected financially by the injury. Forty-one per cent of those at work lost income because their wages were not made up fully by their employers, 23 per cent received sickness benefit only, representing a sudden considerable loss of income. Only eight patients had any form of personal accident insurance policy.

Loss of function

Six weeks after injury, 93 per cent of out-patients and 56 per cent of in-patients reported that they had recovered a full range of movement, but 31 per cent of out-patients and 49 per cent of in-patients still experienced pain or discomfort when using their hand.

The main functional problems are shown in Table 11:3. Difficulties in the home included personal care (dressing, bathing) and housework; at work they involved mainly loss of grip strength and fine finger movements; while at sport they were due mainly to frustration at being unable to resume some sporting activities.

Table 11:3 Main problem reported by 333 questionnaire respondents

	Reported problems	Percentage of replies
Finance	90	27*
In the home	54	16
Writing	50	15
Sport	48	14
At work	35	11**
Driving	18	5

N.B. These figures are not mutually exclusive

*40% of those in employment
**16% of those in employment

Discussion

Injuries at work accounted for only 25 per cent of all hand injuries seen in hospital on more than one occasion. This agrees with other studies which included the whole spectrum of hand injury. In Oxford, Edwards (1975) found that 21 per cent were industrial cases, while in the United States of America the proportion reported by Frazier et al (1978) was only 18 per cent of all cases. In Cardiff, Johns (1981), reported a much higher incidence of occupational injury (42 per cent), which is similar to that reported by Broback et al (1978) in Sweden. It is difficult to compare these results, since differences in the reported proportion of industrial injury may have been due to (a) the differing industrial characteristics of the populations from which the studies were drawn; (b) differences in definition of referral to accident and emergency services; and (c) differences in criteria for selection of the observed samples.

However, it is clear that hand injuries occurring in leisure time make a considerable demand on emergency services. The results also supported the suggestion of Frazier et al (1978) that the home may indeed be a dangerous place, since more injuries happened at home than anywhere else. Glass was responsible for 44 cut hands, and knives, saws, and chisels for 43 injuries, half of them occurring in the home. The use of less fragile materials to replace glass, particularly for drinking utensils, might help to reduce both the incidence and severity of these injuries.

Injuries at sport reflected the popularity of rugby, football and ski-ing in Edinburgh. A recent study of competitive rugby injuries treated in accident and emergency departments in Scotland showed that only 5 per cent were injuries to the hand (Sharp and MacLeod, 1981). The high incidence of hand injuries at rugby and football compared to other sports reported in our study therefore probably reflected the popularity of these sports rather than any particular risk to the hand when compared either to other sports or to other parts of the body. Ski-ing injuries mainly occurred on an artificial ski-slope on the outskirts of the city. Injuries to the thumb as a result of falls while ski-ing on artificial surfaces are well recognised, but it was found that injuries to the little finger, particularly at the metacarpo-phalangeal joint, were equally common. These might have been avoided if mittens had been worn.

The even distribution of injury throughout the days of the week supports the findings of others (Goldwyn and Day, 1969; Page, 1975; Broback et al., 1978). However, the higher proportion of patients requiring admission for immediate operation in the late afternoon and evening made heavy demands on resources at a time when services to deal with them were below optimum staffing levels. The mean time off work (3 weeks for a minor injury and 7 weeks for a major injury) was similar to that reported by Johns (1981), but longer than that found by Edwards (1975), who reported a mean time off work of one week, with two weeks off for fractures. Time off work did not appear to be affected as much by the nature of the injury as by the nature of the job: manual workers - particularly lorry drivers and coal miners - were off for longer than those in light or non-manual jobs. Nevertheless, even a simple injury acquired at sport or leisure activities often resulted in absence from work with accompanying loss of income and consequent financial hardship. Many patients reported symptoms of pain and discomfort for a considerable time after injury. This supported the suggestion by Sharp and MacLeod (1981) that those who take part in active sport should give more consideration to personal accident insurance.

The causes of hand injury were many and varied; most were purely accidental, and the nature, severity and consequences did not differ substantially between work and leisure time accidents. It should be noted that Edinburgh is mainly a commercial rather than an industrial city, and further multi-centre studies would be required to compare these findings with other industrial or rural areas. The results suggested, however, that any reduction in the incidence of industrial hand injury due to increased automation, improved safety regulations and closure of factories, may be balanced by a corresponding increased risk of hand injury in leisure time, particularly in the home, at sport or through alcohol-related accidents. Therefore, although causes may vary, injuries to the hand are likely to continue to make heavy demands on the hospital service and to cause significant functional difficulties for those injured.

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TWELVE

Rehabilitation of hand injuries in Poland

Marek Pieniazek

Institute of Medical Rehabilitation, Krakow

Introduction

The rehabilitation of patients with hand injuries can involve considerable therapeutic, psychological and social problems. It is also very costly. Strzyzewski (1980) cites statistics from the United States showing that, in 1961, approximately one third of all industrial injuries involved the hand, and that the cost of treating these injuries was in the region of 23 billion dollars. Figures from France suggest that a similar situation obtains in that country, and it has been estimated that 55 per cent of injuries in Switzerland are hand injuries. In Russia, the rate of sick leave attributable to hand injury is 454 days per 1,000 workers and, in Poland, the annual cost of sick leave for hand injury is 4.5 billion zloty, with an additional 7 billion zloty expended in social security payments. The annual cost of medical care for patients with hand injuries attending just one hospital in Krakow exceeded 4 million zloty.

The range and duration of the effects of hand injury frequently make restoration of function a slow process in which surgeons, physiotherapists, psychologists, social workers and other members of the rehabilitation team all have a part to play. This chapter outlines the author's approach to the physical ('motorial') rehabilitation of patients with hand injuries, paying particular attention to (a) the different methods of functional assessment employed in evaluating the effects of the rehabilitation programme and (b) the functional and employment outcomes for patients who have passed through the programme.

The sample

The study was conducted in the Laboratory for Functional and Physiotherapeutic Assessment of the Hand at the Provincial Department of Rehabilitation, G Narutowicz Compound Hospital in Krakow. Patients selected for assessment were treated in the M Kopernik III Surgical Clinic at the Krakow Medical Academy.

Between 1976 and 1983, 1491 patients participated in the hand injury rehabilitation programme. They included 504 women, with an average age of 35 years, and 987 men, whose average age was 33 years. Fifty-five per cent of female patients' injuries and 59 per cent of male patients' injuries occurred at work, and 35 per cent of women's injuries and 36 per cent of men's injuries occurred in the home. Other injuries, 10 per cent for women and five per cent for men, occurred elsewhere. The dominant hand was involved in 70 per cent of women's injuries and 65 per cent of men's injuries - underlining the enhanced susceptibility to trauma of that hand. Patients' injuries are reported in Table 12:1. This reveals, for both males and females when classified according to their most severe injury, that tendon damage was the main reason for hand dysfunction, followed by traumatic amputation and nerve injury. Fractures, crush injuries, scalds and burns all occurred much less frequently. The average time for initial treatment (which often involved immobilisation of the hand) was 37 days for women and 34 days for men. Figure 8 outlines schematically the main stages of rehabilitation in relation to time of injury, referral to rehabilitation and the time at which patients return to work.

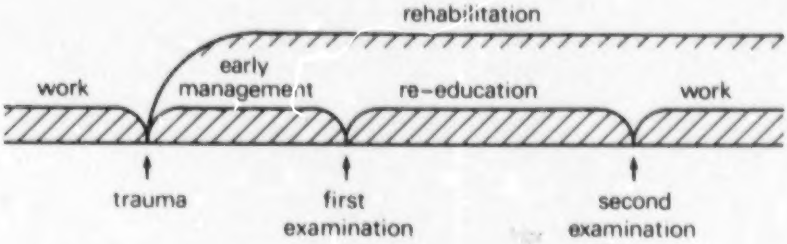
Table 12:1 Nature of hand injury

Nature of injury	Females (%)	Males (%)
Tendon damage	45	44
Traumatic amputation	20	22
Nerve damage	15	7
Fractures	5	10
Scalds or burns	5	4
Crush injuries		3
Total (%)	100	100
Number of patients	504	987

Functional assessment methods

In addition to normal clinical monitoring and casual assessment, each patient was assessed formally on a standard battery of tests to measure range of movement; strength; grip; dexterity; sensory awareness and perceptual-motor

Figure 8 Stages of the rehabilitation process



coordination. These were accompanied by an ergometric assessment of hand function.

Range of movement was measured with the aid of a goniometer and strength was measured by a tensometric device. Each of these approaches was used to measure both grasp and pinch grip (a finer assessment of opposition between the thumb and each of the fingers in turn). Grip was assessed by tests of precision and strength, and dexterity was measured by the time taken to perform selected one and two-handed tasks. Standard tests of stereognosis were used to establish each patient's sensory awareness. Perceptual-motor coordination was also assessed for both one and two-handed tasks. Ergometric assessment of hand function used a Polish system, the Ergograph.

The battery of assessments assembled for use in this study was administered both at the beginning and on completion of the physical rehabilitation programme. In Figure 8, this phase corresponds to the period of 're-education' as opposed to the preceding, post-trauma 'early management' period, when medical care is provided (Zeyland-Malawka, 1968).

The rehabilitation programme

Effective help for disabled people should include a rehabilitation programme with therapeutic, occupational, social and educational elements. Apart from the contributions of plastic surgery, prosthetics and orthotics, occupational therapy and social work, physiotherapy has a distinctive contribution of its own to make to rehabilitation. The physiotherapy programme developed for the patients with hand injuries reported in this study included warm-up exercises, a general programme of mainly active-resistive exercises, and special exercises to try to improve grip, dexterity and sensory awareness. It also included group exercises with a competitive element, individual work with each patient, occupational therapy and instruction in remedial exercises to be performed at home.

Following preliminary examination, individually-tailored exercise programmes were arranged for each patient. Warm-up exercises of the whole injured limb and its non-injured counterpart were undertaken in readiness for more specific localised exercise of the injured area. Localised exercise mainly assumed the form of active movements, usually against resistance, using a combination of weights and pulley, springs or materials with different degrees of elasticity. Enhancement of grip was achieved through appropriate strengthening exercises and by practice in manipulating and moving objects of different size, shape, weight and texture. Dexterity and sensory awareness - attention to which has been highlighted by both Stolar (1972) and Parry (1973) - were increased by encouraging patients to handle all kinds of objects in everyday use.

A special game was invented to enhance patients' motivation and to make participation on the programme more attractive. As Pachalski and Orlowski (1975) have observed, muscle strength can be increased by between 10 and 25 per cent, and precision and accuracy of movements can become between 20 and 40 per cent better, under competitive conditions compared with those which lack an element of competition.

Individually designed courses of physiotherapy for each patient were the most important feature of the rehabilitation programme. Each patient's course embraced a variety of methods which were adapted to his or her own special needs and which could include water exercises, manipulation under anaesthetic, and active and passive exercise, with or without assistance or resistance, as required. These exercises were designed to help patients regain lost skills or to learn how to compensate for lost functions.

All patients were advised to complement their physiotherapy with occupational therapy and exercises to be undertaken at home, and in which they received detailed instruction. They were therefore encouraged to use their injured hands as much as possible across the entire range of domestic and self-care tasks that they were capable of performing.

The whole physiotherapy programme was graded to conform with each patient's progressively improving ranges of ability and activity.

Results

Methods of analysis

Arithmetic means, standard errors, standard deviations and co-efficients of variation were computed for each formally assessed dimension of hand function, separately for male and female patients. Mean scores were compared with those obtained from control groups of 30 men and 30 women of similar age and occupation and with normal hand function who were assessed on just one occasion. Comparison between the two male and the two female groups enabled the average relative degree of functional impairment in the disabled groups at the beginning and end of the rehabilitation programme to be expressed as a percentage of their respective control groups' performance. Comparison of the two mean scores for each patient group on each variable provided a measure of the degree of improvement on each of the assessed dimensions of hand function over the rehabilitation period.

Comparisons between patient and control groups

Results for both males and females are presented in Table 12:2, which reports their mean scores on each of seven assessments of hand function, administered before and after rehabilitation, as a percentage of the mean scores of their respective control groups on the same battery of formal assessments. For women, when first assessed, dexterity represented the most severe degree of impairment - followed in order of severity by ergometry, strength, range of movement, grip, sensory awareness and perceptual-motor coordination. By the second assessment, this ordering had changed, although some improvement was found in all seven of the assessed functions. One interesting feature, although not a significant one, was the finding that the second assessment of perceptual-motor coordination produced a higher mean score than that which had been obtained by the control group. For men, when first assessed, the most severe degree of impairment was found with ergometry - followed in order of severity by dexterity, strength, range of movement, grip, sensory awareness and perceptual-motor coordination. In their case also, second assessments revealed some variations in ordering and produced evidence of overall improvements on every one of the seven assessed functions, with patients again obtaining a higher score than controls in the assessment of perceptual-motor coordination.

Comparison between first and second assessments

Table 12:2 also indicates the percentage improvement between first and second assessments for both male and female patients. In both cases, the biggest improvements were in dexterity and ergometry (which were most severely impaired initially), with all other assessed functions also showing some degree of improvement over time. Other studies have reported similar improvements in dexterity (Nadolski, 1978).

Regression analysis

Linear, partial and multiple correlation coefficients produced by more refined analysis of patients' scores on the seven functional assessments highlighted other relationships. Firstly, the potentially negative influence of

Table 12:2 Patients' assessments of performance on selected assessments of hand function before and after rehabilitation*

FEMALES

Hand function	Pre-rehabilitation	Post-rehabilitation	Percentage improvement
Range of movement	49	78	29
Strength	32	65	33
Grip	58	88	30
Dexterity	1	72	71
Sensory awareness	75	96	21
Co-ordination	76	106	30
Ergometry	5	46	39

MALES

Hand function	Pre-rehabilitation	Post-rehabilitation	Percentage improvement
Range of movement	58	82	24
Strength	44	72	28
Grip	65	87	22
Dexterity	23	80	57
Sensory awareness	68	91	23
Co-ordination	85	104	19
Ergometry	15	56	41

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*All results are expressed as a percentage of mean scores on each assessment by 30 female and 30 male control subjects.

immobilisation on range of movement was found to increase with age, especially for female patients. Secondly, loss of strength in male patients was associated with decreased dexterity. Thirdly, ergometry scores for women were influenced most strongly by age but for men they were associated most closely with assessments of strength. Fourthly, improved physical activity was accompanied by improved grip.

Return to work

One of the most significant outcome measures of rehabilitation is its impact on return to work or resumption of other normal activities. In this series, 78 per cent of the patients resumed their former occupations, with a further 16 per cent moving into jobs of a modified, lighter or sheltered kind. The remaining 6 per cent received disability pensions.

Discussion

The hand injuries reviewed in this study occurred mostly at work and when patients were performing routine duties. They were also especially prevalent during early working hours. That injuries of this kind can have such serious consequences suggests a need for preventive measures. It is suggested that preventive measures should include 'kinesiprophylaxis', a special routine of dexterity, grip and coordination exercises to be performed before work commences and/or for short intervals during working hours, although this study did not test this hypothesis directly.

The rehabilitation programme reported here began after the initial period of medical and surgical treatment during which the injured hand was sometimes immobilised for several weeks. A number of secondary changes occurred during that interval including muscle wasting, loss of range of movement, scarring, keloid scarring and decalcification. Treatment of such secondary effects requires enormous effort on the part of physiotherapists and is not always as successful as we would wish it to be. Examinations made in the course of this study revealed that secondary changes occurred in almost every case, although they varied greatly in severity. Also, it was sometimes impossible to restore range of movement without resorting to manipulation under local anaesthetic. For these reasons, it would seem advisable to commence preliminary rehabilitation immediately following surgery. This development would require close co-operation between hand surgeons and physiotherapists. Nevertheless, based on the principle *primum non nocere,* early physiotherapy along these lines could help both to prevent secondary changes and to diminish the longer-term consequences of trauma.

Throughout the world, there are numerous clinical centres and services specialising in the treatment of hand injury. Each has its own effective methods and procedures (Stolar, 1972; Parry, 1973; Demiczew et al, 1974; Rohde, 1976;

Fitzgerald, 1977; Clement, 1978; Mackin and Hunter, 1979). Research which elucidates the effectiveness of physical therapy exercises can be expected to play a central part in medical rehabilitation. Some assessments of hand function are already available. Ejeskär (1980) has reported how muscle strength can be assessed and Jebsen et al (1969) have produced an assessment of hand function. In related fields, Musur (1975) has developed procedures to assess functioning of the rheumatoid hand and Sjawlowski (1968) has produced a similar system of assessment for patients with spasticity of the hand. The time has come, however, to develop a more general system of assessment of hand function, acceptable to all rehabilitation specialists and based on objective criteria which can be applied universally.

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THIRTEEN

Antecedent angina, work level and outcome after myocardial infarction

Alistair E Philip

Department of Clinical Psychology, Royal Edinburgh Hospital, Edinburgh

Introduction

Although recovery from a myocardial infarction is primarily a physical matter several independent studies have demonstrated the importance of psychological and social factors in rehabilitation (Cay et al, 1973; Nagle et al, 1971; Pancheri et al, 1978; Philip et al, 1979).

There is no single outcome measure of recovery, even if only physical measures are examined (Philip et al, 1981). A recent report from Edinburgh (Philip, 1982) has considered the relative merits of a selection of physical, psychological and social variables and has concluded that there are at least five conceptually independent aspects of outcome. These are: (i) mortality; (ii) presence of cardiac pathology; (iii) general physical well-being; (iv) emotional well-being and (v) work performance. In that study, the presence of specific cardiac pathology was ascertained by X-ray, including the calculation of the cardio-thoracic ratio, and by the detection of heart murmurs. General physical well-being was measured using the WHO grading of angina (Rose and Blackburn, 1966) while general emotional well-being was assessed by the General Health Questionnaire (Goldberg, 1972). Work performance was assessed not only by the fact of being in employment but also by assessing changes in level of activity at work following the scheme set out by Cay et al (1973).

Such measures can be used to provide an outcome pattern for any given cohort. For this particular Edinburgh series, the profile at one year was (i) 8 per cent dead; (ii) 9 per cent of survivors exhibited cardiac pathology; (iii) 6 per cent had severe angina and a further 45 per cent had mild angina; (iv) 12 per cent had experienced significant emotional upset and (v) 82 per cent of those previously in employment went back to work, 49 per cent working as hard as before.

There are more and better measures of the condition of patients after an infarction and subsequent admission to hospital than of the state of the patient before the attack. But it is possible, through interviews and other methods, to gain information about pre-infarction physical, emotional and social features and to relate these antecedent features to subsequent outcome. Any 'consecutive series of men suffering a myocardial infarction' comprises a mixed group of individuals whose particular physical, psychological and social histories will influence how they cope with an infarction and subsequent rehabilitation. This chapter looks at the usefulness of two pre-infarct characteristics, angina and work level, as predictors of post-infarct outcome.

Methods and results

Sample characteristics

The sample of 176 patients is drawn from 275 consecutive male admissions to the Coronary Care Unit of the Royal Infirmary of Edinburgh, 197 of whom were suffering their first myocardial infarction, 176 being in employment. Their demographic composition is outlined in Table 13:1.

Table 13:1 Demographic characteristics of the sample

Age:	mean 53 years, range 33 to 64 years
Work:	26 per cent in professional or white collar jobs
	39 per cent in skilled manual jobs
	35 per cent in semi-skilled or unskilled jobs
Civil state:	90 per cent were married

Medical history

Table 13:2 shows that almost two-thirds of these working men admitted with a first myocardial infarction had a history of angina. Most of these had maintained their usual work level but a sizeable minority had reduced their workload. Three groups of patients can be identified and compared: those with angina and a normal work level (Group 1, n = 87); those with angina and a reduced work level (Group 2, n = 27); and those with a normal work record and no angina (Group 3, n = 58). Four patients with no angina and a reduced work level were excluded from the statistical analysis. The groups did not differ on the demographic characteristics listed in Table 13:1.

On average, the groups were comparable in severity of infarction as assessed by the indices proposed by Peel et al (1962) and Norris et al (1969), (Table 13:3) and in time spent in hospital (Table 13:4).

Table 13:2 History of angina and work level

Work	Angina Present	Absent
Normal work level	87	58
Reduced work level	27	4
Totals	114	62

Table 13:3 Severity of infarction

Group	Mean scores on Peel Index	Normal Index
1. Angina, normal work	12.7	8.2
2. Angina, reduced work	12.1	7.9
3. No angina, normal work	12.6	8.2

Table 13:4 Time spent in hospital

Group	Mean days spent in Coronary care unit	General ward
1. Angina, normal work	2.7	16.8
2. Angina, reduced work	2.5	16.0
3. No angina, normal work	2.7	16.8

Emotional problems

Table 13:5 show a significant difference in the proportion of emotionally disturbed individuals in each group ($\chi^2 = 6.36$, df = 2, $p < .05$). The General Health Questionnaire is a well validated measure for detecting psychiatric disorders; community surveys using this or similar measures have yielded an incidence of 'cases' ranging between 10 and 15 per cent (Shepherd et al, 1966; Corser and Philip, 1979).

Table 13:5 Emotional state in hospital

Group	GHQ classification Normal	 Case
1. Angina, normal work	53	25 (32%)
2. Angina, reduced work	13	13 (50%)
3. No angina, normal work	37	10 (21%)

Outcome

When the patients were reviewed 12 months after their myocardial infarction it was found that the groups did not differ significantly in mortality although the raw figures in Table 13:6 shows the angina plus reduced work group to have the lowest incidence.

Table 13:6 Mortality at one year follow-up

Group	Death from further infarction
1. Angina, normal work	10 (12%) of 85 patients followed up
2. Angina, reduced work	1 (4%) of 26 patients followed up
3. No angina, normal work	5 (9%) of 55 patients followed up

Similarly, Table 13:7 indicates that while Group 2 had the lowest incidence of cardiac pathology, defined as positive findings on any two of the three measures described earlier, the differences between the groups did not achieve statistical significance.

Table 13:7 Severe cardiac pathology at follow-up

Group	Incidence
1. Angina, normal work	5 (7%) of 75 assessed by physician
2. Angina, reduced work	1 (4%) of 25 assessed by physician
3. No angina, normal work	4 (8%) of 50 assessed by physician

Table 13:8 shows clear differences in the incidence of angina at follow-up. The differences are statistically significant ($\chi^2 = 8.82$, df = 2, $p < .025$) mainly due to the very high incidence of angina displayed by Group 2, the patients with angina and a reduced work level. It is worth noting that Group 3, whose members had no angina prior to their first infarction, now had almost as high an incidence of current angina as Group 1.

Table 13:8 General physical well-being at follow-up

Group	Angina present	Angina absent
1. Angina, normal work	32	38
2. Angina, reduced work	18	6
3. No angina, normal work	19	30
Totals	69	74

Emotional outcome

Table 13:9 compares the emotional state of the groups at follow-up when the General Health Questionnaire was again used to identify cases. Once more the

patients with angina and a reduced workload stand in contrast to the others ($\chi^2 = 6.68$, df = 2, $p < .05$). The incidence of 'cases' in these latter groups is close to what would be found in a community sample while the incidence in Group 2 is three times greater.

Table 13:9 Emotional state at hospital

Group	GHQ classification Normal	Case
1. Angina, normal work	46	9 (16%)
2. Angina, reduced work	11	7 (39%)
3. No angina, normal work	33	4 (11%)

Employment outcome

Work status at follow-up is shown in Tables 13:10 and 13:11. Most patients who were working normally prior to their infarction, regardless of whether or not they experienced any angina, were back at work compared with under 60 per cent of those with a reduced workload prior to their illness ($\chi^2 = 12.69$, df = 2, $p < .005$). The application of a more stringent standard (being as fully active in the job as before the infarction) revealed a similar pattern. About one half of Groups 1 and 3 were as active as before while only one-third of Group 2 were fully active ($\chi^2 = 12.71$, df = 4, $p < .025$). The difference arises from the fact that fewer of the patients in Group 2, those who had angina and a reduced workload prior to their infarction, went back to work. The proportion of those back at work who were fully active is the same in all three groups.

Table 13:10 Work status at follow-up

Group	Working	Not working
1. Angina, normal work	64 (90%)	7
2. Angina, reduced work	14 (58%)	10
3. No angina, normal work	41 (84%)	8

Table 13:11 Level of work activity

Group	Fully active	Reduced level	Not working
1. Angina, normal work	38	26	7
2. Angina, reduced work	8	6	10
3. No angina, normal work	24	17	8

Discussion

The expectation at the beginning of this study was that, on some comparisons at least, there would be a gradient of scores with Group 1, the patients with angina but no lessening of workload, falling between Groups 2 and 3. This was true for emotional state while in hospital but not for any of the measures of outcome at one year follow-up. The groups did not differ in mortality or in the incidence of severe cardiac pathology at follow-up. Groups 1 and 3, who prior to infarction had differed totally in their incidence of angina, were passably similar in their incidence of recent angina at follow-up. Over one half of Group 1 no longer suffered from angina whilst over one third of Group 3 had changed for the worse in this respect. Only one in four of the Group 2 patients had ceased to suffer from angina at follow-up, a much lower proportion than Group 1. There were no clear differences in severity or duration of angina between these groups prior to their heart attacks.

The convergence of Groups 1 and 3 in the incidence of post-infarct angina is paralleled in the similar proportions of patients with a significant degree of emotional upset. For both groups the proportion is within the range found in community studies while the proportion of emotionally upset patients in Group 2 is well above the expected range. The similarity between Groups 1 and 3 continues when return to work and level of activity are considered. For these psychological and social variables, pre-infarction physical state has proved to be less useful as a predictor than change in work style.

The reporting and assessment of severity of angina is an area where physical and psychological factors intermingle (Cay et al, 1973). The patient's own assessment of the implications of anginal pain for his physical well-being often leads to behaviour which could not be predicted from the physician's assessment of the same symptoms. One third of all those employed men who experienced angina before their heart attack were working less well, whereas only one man in every fifteen of the angina free group reported such a change. To investigate how patients vary in their perception of angina and how that relates to their attitude to work is to move very clearly from the realm of medicine to that of psychology. Amongst others, Warr (1979, 1983) has devised methods of assessing work attitudes and has related differences in such attitudes to differences in emotional well-being. At a time when unemployment throughout Western Europe is commonplace, it is no longer valid to use 'return to work' as a functional indicator of successful rehabilitation. By teasing out the financial, psychological and social aspects of work it will be possible to identify those psychological characteristics which are related to getting back to work and which are also related to other aspects of psycho-social adjustment and rehabilitation.

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FOURTEEN

Back pain and employment

H J Glanville and R Tebay

Department of Rehabilitation, University of Southampton

I A SURVEY OF HOSPITAL PATIENTS

Aims and methods

Between 1963 and 1973, 373 patients, all under 40 years of age, seeking medical advice for back ache for the first time attended the orthopaedic or rheumatology and rehabilitation clinics in Salisbury District General Hospital or one of three local general practitioners. They were examined, the findings noted and the patients were followed-up in a way that was appropriate for their clinical problems. In 1979, the patients were traced and sent a postal questionnaire by Janet Caldwell, a research assistant in the Department of Rehabilitation. The effects of back pain in these patients were analysed retrospectively. Whilst retrospective questionnaires have serious limitations they can give some useful information, particularly on parameters such as employment.

Results

Frequency of back pain episodes

During the follow-up period 69 per cent of respondents described acute attacks which were reported to have lasted up to one week, while 17 per cent had experienced attacks lasting longer than a month, including two per cent of patients who described their symptoms as continuous or very disabling. Seven per cent had chronic back pain and only 11 per cent had never had another attack of back ache in the follow-up period of 10 to 16 years.

Effects of back pain on employment

The effects of back pain on the employment of the respondents to the questionnaires in the series suggested that most had learned to cope with it or to compensate in one way or another to enable them to live reasonable lives. When the study was completed in December 1979, 67 per cent of all respondents (95 per cent of men and 28 per cent of women) were in full-time work while 1.4 per cent (2.5 per cent men and no women) were absent from work on account of sickness. The unemployment rate in this series (1.1 per cent) was representative of the local employment situation but lower than the national average of 6.5 per cent at that time. Thirteen per cent of the respondents were in part-time work (men 1 per cent and women 29 per cent), the proportion of male to female corresponding to the national average at the time. Thirty- nine per cent of back pain sufferers reported that they had needed help of one form or another at work during an attack but only three per cent (one per cent of men and six per cent of women) had given up work altogether or taken early retirement. On the other hand, 21 per cent (men 25 per cent and women 14 per cent) had changed to lighter work and 10 per cent (men 8 per cent and women 13 per cent) had been obliged to reduce their working hours. Less than two per cent of patients employed in an occupation involving heavy lifting remained free from back pain after the first attack compared to 11 per cent of the series as a whole.

About 20 per cent complained that inability to meet overtime requirements, reduction of the choice of job opportunity and adverse promotion prospects had reduced their effective earning capacity. However, 71 per cent had not had to give up or alter their working arrangements in any respect.

Assistance with rehabilitation and return to work

It may be significant that in this series, all patients had the benefit of a well coordinated and organised, hospital-based, employment counselling and placement service using the Disablement Resettlement Officer in conjunction with a large number of local employers who are members of the Wessex Rehabilitation Association. They gave invaluable help in obtaining direct placement, and also in developing an industrial rehabilitation environment in the Salisbury Hospitals, in their own factories and in the district as a whole.

When patients had difficulty in obtaining placement in employment they attended the hospital rehabilitation department and had the advantage of practical assessment of work ability and capacity followed by direct placement wherever possible. The patients were followed-up and in this way information concerning work performance was collected. When problems arose, appropriate solutions could be suggested on the basis of this knowledge, and time and expense were saved by solving problems locally rather than by relying upon assessment and training agencies at a distance, which lacked local insight, first hand knowledge of the individual's social and medical status as well as the personal commitment which comes from initial and ongoing responsibility for a patient.

II A SURVEY OF CHEMICAL PLANT EMPLOYEES

Aims

Information in the clinical records of the patients in the previous study showed that 39 per cent of respondents to the questionnaire associated lifting, bending and twisting with the onset of their low back pain. It was decided therefore to carry out a supplementary study to assess the effect of training in manual handling techniques on the prevalence of low back pain in a working population.

A medium sized chemical processing plant had shown its concern about low back pain among its employees by having the work practices in its Shipping Department assessed by the Materials Handling Research Unit (MHRU) of the University of Surrey. Some of the MHRU recommendations implemented by the company included alterations in working postures and manual grip, provision of drum barrows, reduction in loading heights, automation of sack filling and stitching, alteration of pallet height and alteration of the height of feed down pipes. After these modifications had been completed, training in kinetic handling was given. It was at this stage that the company agreed to co-operate in a study undertaken by the Department of Rehabilitation at the University of Southampton.

The plant had reasonably good working conditions and all employees had full staff status. This meant that manual and non-manual employees could be compared without having to consider bias caused by differing security of tenure of post or differing financial security in times of illness.

Methods

All certified sickness absences for the period 1977-80 were examined and the number of persons in each department who had periods of absence of more than three days was noted. The reasons were classified as 'lumbar disorders' and 'all other illnesses'. For the purpose of this study, 'lumbar disorders' comprised back strain, back pain, sciatica, back trouble, acute lumbago, lumbosacral strain, lumbar disc prolapse and back ache - a list which emphasises the difficulty of providing an exact diagnosis in patients who complain of back pain.

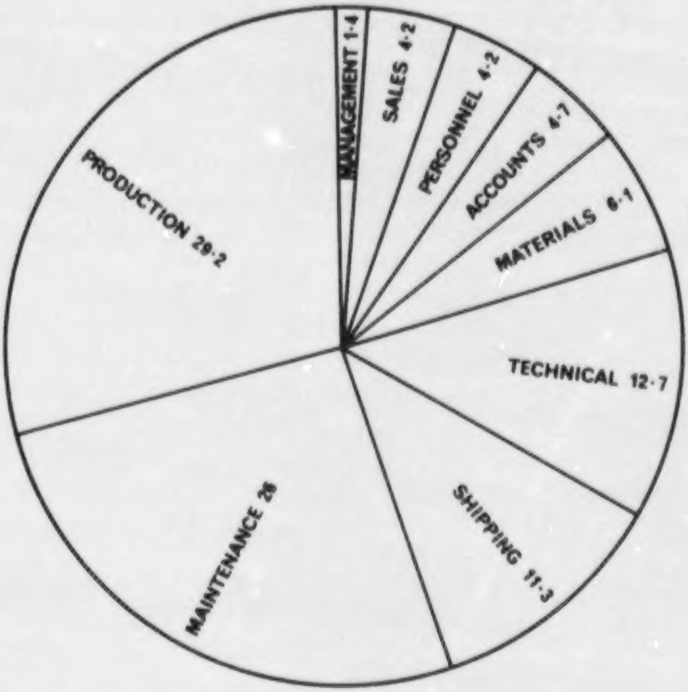
A simple questionnaire was given to each employee. This requested information concerning age, sex, department, job title, number of years employed at the plant, leisure activities, and whether they suffered from back pain or not. The research assistant attended the training courses in kinetic handling partly to educate herself and partly to allow employees to get to know her, since it was hoped that a personal approach would produce a high questionnaire response rate.

Results

General population characteristics

The plant had a workforce of 212 (22 of whom were females employed in non-manual and support services). Figure 9 shows that manual workers represented 66 per cent of the factory population and were employed in the Maintenance, Production and Shipping departments. Seventy-five per cent of employees responded to the questionnaire but only 57 per cent of respondents were manual workers, a percentage which is low when compared with that for the subgroup as a whole.

Figure 9 Departmental distribution of the work force



The company had a very stable work force. Approximately half (53 per cent) of the respondents had more than six years service with the company, while 40 per cent had worked for it for more than 11 years. This was reflected in the age of the employees. Only two respondents were under the age of 20, five were over the age of 60 while the remainder were distributed between the intervening four decades, with a propensity to the upper range.

Low back pain

Slightly less than half (47 per cent) of the respondents had suffered low back pain. Within the manual grades the prevalence of low back pain in employees of the Maintenance (57 per cent) and Shipping (59 per cent) departments was above the population mean, while workers in the Production department had a prevalence slightly below the mean. It is interesting to note that, of the non-manual grades, 71 per cent of accounts staff respondents and 63 per cent of sales staff respondents had experienced low back pain. These figures may of course be biased by the differing response rates to the questionnaires and employees with low back pain may have been more likely to respond.

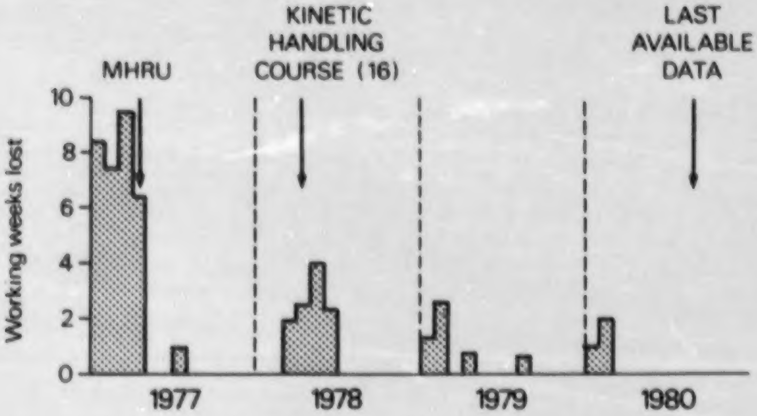
Seventeen respondents admitted to having secondary employment (including the care of young children) and 13 of them complained of low back pain. In contrast 47 per cent of the 153 respondents having an active hobby complained of having had low back pain. It would seem therefore that people with a second job, either within or outwith the home, are at risk of developing backache and might potentially benefit from education regarding the principles of work, space design/layout and materials handling.

Changes in sickness absence with time

During the period covered by the study, there was an overall reduction in sickness absences and the percentage due to 'lumbar disorders' declined from 10 per cent to five per cent.

Staff of the Shipping department were very poor respondents so only their certificated sickness absences have been analysed (Figure 10). These showed that there was a marked reduction of low back pain after the recommendations of the Materials Handling Research Unit had been adopted and a reducing trend in subsequent years. This may be associated with training in manual handling; a continuing effect of changes in the work conditions following the MHRU visit; or the effects of the *Health and Safety at Work Act*. Alternatively, it may be a classic example of the Hawthorne effect. Low back pain also appeared to be a seasonal condition in the Shipping department. Very little time was lost due to back pain in the months May to August and none at all from September to December. In contrast over the four years, 1977 to 1980, the time lost in the months January to April averaged 10.7 weeks. Since the peak of work throughput occurs in the summer months, work and low back pain prevalence do not correspond.

Figure 10 Low back pain related disturbances in the Shipping Department



Conclusions

The employees of the chemical plant experienced a reduction in low back pain during the period of this study. As a percentage of total sickness absences those attributable to low back pain reduced from 10 per cent to five per cent over a period when changes had been introduced to working practices in the factory. Employees with secondary job commitments were more at risk than those with active hobbies. Designing work space layouts in such a way that good posture and correct lifting are encouraged therefore appears to reduce sickness absences due to low back pain.

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PART IV

WORK DISABILITY AND REHABILITATION IN PERSPECTIVE

FIFTEEN

Work, disability and rehabilitation in perspective

John Hunter and Paul Cornes

Rehabilitation Studies Unit, University of Edinburgh

Introduction

The 140 papers and 28 posters presented at the First European Conference on Research in Rehabilitation provided the participants with an overview of many of the wide range of complex issues which are encompassed by the term 'rehabilitation'. The 14 papers included in this volume, and the other contributions to the conference mentioned in the introduction to each section, offer an opportunity for a wider audience to take stock of some recent contributions to our understanding of the employment problems of disabled people and the impact which vocational rehabilitation policies and practices have had on these problems. This relatively small number of papers, of course, cannot be claimed to be representative of all recent developments in this field but, collectively, they do raise issues which have important implications for future policy, practice and research. In this final chapter we wish not only to go over these issues but also to highlight others which have been touched upon only in general terms - for example, how to define and operationalise basic concepts; the extent to which we have yet to develop naturalistic approaches to understanding what Stubbins (1977) has called the 'lived world of disabled persons'; the need to bridge the gap between the clinical and societal approaches to the management of disability; the impact on services of social and economic change and changes in the demography of disability; and consideration of some alternative approaches to try to make the services which are provided more appropriate to the needs and aspirations of people with disabilities. We shall consider these various perspectives - definitional, clinical and societal - in turn.

Definitions

Rehabilitation has been defined in many ways, although mostly in a medical context for obvious reasons. For example, in the Mair Report (1972), it is defined as "restoration of patients to the highest level of physical, psychological and social adaptation attainable after illness or injury". This focusses on the individual patient's recovery, but we also need to consider the societal factors which contribute to the eventual outcome of rehabilitation. Such wider dimensions were taken into consideration in the *International Classification of Impairments, Disabilities and Handicaps* (World Health Organization, 1980) which recommended the following provisional definitions:-

> *Impairment:* "In the context of health experience, an impairment is any loss or abnormality of psychological, physiological, or anatomical structure or function."
>
> *Disability:* "In the context of health experience, a disability is any restriction or lack (resulting from an impairment) of ability to perform an activity in the manner or within the range considered normal for a human being."
>
> *Handicap:* "In the context of health experience, a handicap is a disadvantage for a given individual, resulting from an impairment or disability, that limits or prevents the fulfilment of a role that is normal (depending on age, sex, and social and cultural factors) for that individual."

In this classification, disability may be the direct consequence of an impairment or an indirect consequence as a result of the individual's psychological response to the impairment. Handicap is a statement of social disadvantage suffered by an individual as a result of an impairment or disability. The ICIDH definitions are not perfect; for example, recent work has shown how difficult it can be to operationalise the concepts of impairment, disability and handicap in both research and clinical practice (Ford, 1984). Nevertheless, they are an important landmark in the conceptualisation of many of the issues that we have to face in rehabilitation theory and practice. The ICIDH perspective focusses on the problems with which an individual has to cope as a result of a disease process or injury. But, while it encourages comparison between that person's situation and the majority of fellow citizens who are not disabled, it is arguable that it gives less emphasis to handicap than to clinical and functional dimensions. It must be remembered that there is another view of disability (described by Croxen in Chapter Five) which concentrates on the impact which social and economic policies and, indeed, the attitudes of society as a whole may have on the life of a disabled person. While this resembles the ICIDH definition of handicap, it lays more stress on societal variables. In future, it may be desirable to strive both for better balance between clinical and societal perspectives and for the adoption of a standard terminology.

These concepts and definitions are not merely academic: they have very practical implications. Consider, for example, the main theme of this book, the social disadvantage or handicap experienced by people with disabilities in the field of employment. Many, if not most people with disabilities are not handicapped at work - and, in most countries, this is reflected in policies and services which clearly are not intended to help all disabled people but merely those who experience handicap in the labour market. Sensible though this approach may appear in principle, it is flawed in practice. This is because such policies normally define eligibility for services or for preferential treatment not in terms of handicap but in terms of impairments or disabilities. We shall return to this problem after examining some of the relevant clinical and societal issues.

Clinical perspectives

The first and most important step in managing disability is to recognise the multitude of physical, psychological and social factors which can present in any case and which interact to determine the final outcome. One of the conceptual challenges to rehabilitation is how to provide a simple frame of reference into which these numerous and interacting factors can be set. We believe that this involves both a qualitative approach, splitting the problem into its component parts, and a quantitative approach, measuring the severity of the problems in physical, psychological and social dimensions.

Qualitative aspects

To a practising clinician, there are three essential elements in the successful rehabilitation of a disabled person.

1. There must not only be a correct diagnosis or diagnoses but also a comprehensive assessment of the various physical, psychological and social factors operating in that particular case. This results in the formulation of a list of problems.

2. The identification of those items on that list of problems which are capable of improvement, whether this be as a result of natural healing processes, therapy or the provision of appropriate aids, benefits or services. Because therapeutic efforts concentrate on optimising positive aspects, the implication is that factors which are not susceptible to improvement have to be accepted as such, both by the patient and his or her professional advisers.

3. All the various aspects of management must be coordinated, including the contributions of other helping professions and outside agencies such as those which can be called upon to assist with the patient's employment rehabilitation and return to work.

The last of these three dimensions of concern to clinical management highlights the crucial part that social and economic policies play in providing an effective framework within which clinical initiatives can be taken. The need for effective bridging between clinical and societal initiatives is well illustrated by Mildred Blaxter's (1976) study of the problems faced by a sample of 'appreciably disabled' patients who were discharged from hospital on recovery from acute illness. This study showed that the main barrier to optimum social resettlement was the sheer administrative complexity of the many services which can be mobilised to assist such patients. Effective rehabilitation therefore requires a practical understanding of not only the clinical and social aspects of disablement but also how to mobilise available resources and services to the best advantage of the patient.

There are other examples where the discrepancy between policy and practice is so great that apparently it cannot be bridged. In Great Britain, many clinicians are of the opinion that the quota scheme, which imposes a legal obligation on employers of more than 20 people to observe a quota of three per cent registered disabled people in their work force, provides an example of this kind. While, in theory, the quota scheme ought to be a positive help to their patients when entering or re-entering employment, the higher level of unemployment experienced by people with disabilities compared with their non-disabled counterparts is regarded generally as proof of the failure of this policy to achieve its perceived practical objective of giving such patients preferential access to employment. Naturalistic studies like Blaxter's, revealing the problems that disabled people encounter in the labour market on discharge from medical treatment, should be a priority for future research.

A case study may illustrate some of these general observations in a more practical way. A 32 year old man with a 10 year history of ankylosing spondylitis, a condition which produced pain and stiffness in his spine and right hip, had difficulties at work as a maintenance engineer because he could not bend over benches for any length of time and because it was most uncomfortable for him to get into confined spaces. He had not told his employer about his difficulties and had 'soldiered on' with the help of anti-rheumatic drugs. He was single and lived with his elderly parents in a third floor apartment, his main social contacts being in the local pub and betting shop.

When he was involved in a car smash he sustained a number of soft tissue injuries and a nasty fracture of his left femur which broke in many places just above the knee, which was treated initially by immobilisation in plaster of Paris. Just as he was getting over the initial injuries he became very ill as a result of a fat embolism which made him confused, semi-conscious and he had difficulty breathing. He had to spend ten days in the intensive care unit but fortunately recovered.

When he was well enough to be got out of bed it was found that his back had stiffened up substantially, that both hips were very limited and he had a flare up of inflammation in his right knee; his left leg of course was in plaster. In spite of treatment with anti-inflammatory drugs and an active programme of exercises for his spine, hips and right knee, his progress was less than expected because of a mild reactive depression. He responded to counselling and encouragement and was then able to co-operate with the programme of physical rehabilitation.

At the end of the period of hospital and out-patient management, he was left with greater stiffness in the spine and right hip than he had experienced before his accident. His left knee was very limited so that he walked with it held almost straight, and he had continuing problems of pain due to inflammation in the right knee. Because of the stiffness of the left knee and right hip he had considerable difficulty going up and down stairs to his parents' apartment, but after discussions they decided to stay there rather than seek alternative housing. He took up regular swimming to try to prevent further stiffening of his joints but maintained his old social contacts as well.

His employer and fellow workers were made aware of his longstanding difficulties at work and that he would be unable to perform all his old duties effectively. They were very helpful in modifying his job and, with the help of a grant from the Manpower Services Commission, arranged a new work station which would allow him to perform his modified duties effectively.

However, he had great difficulty getting on and off public transport because of the stiffness in his legs, and also had difficulty getting in and out of small cars because the left leg was almost straight. He applied for Mobility Allowance, a cash benefit payable in Britain to people under 65 who are unable or virtually unable to walk, but was refused this benefit on the grounds that he was not sufficiently disabled in walking, his difficulties being with steps and getting up from certain positions.

His principal barrier to continued employment therefore was the difficulty he had in getting to and from work owing to these transport difficulties. Appeals against the Mobility Allowance decision were unsuccessful, but one of his colleagues agreed to take him to and from work in return for him sharing the additional cost of petrol. When last seen he was saving up to buy a second-hand car and intended to have it modified so that he could drive himself.

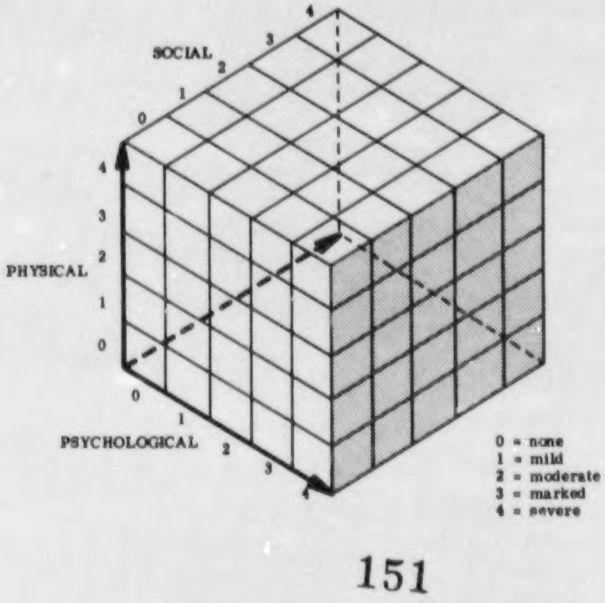
This example illustrates how various physical, emotional and social problems were identified and managed. It also illustrates that the eventual outcome of any programme of rehabilitation depends not only on the disease which has afflicted the patient and on his or her social situation but also on his or her personal qualities: the singer is as important as, if not more important than, the song. In this case study, the patient had a stable personality and good support from all around him. In order to achieve an equivalent outcome, a patient with a history of coping with problems would require much more time and effort from professional advisers, family and prospective employers.

Quantitative aspects

After splitting a case into its constituent problems, it is necessary to measure the severity of individual physical, psychological and social problems in addition to any global assessment of disablement. There are, of course, a number of instruments to measure physical aspects of disability, including the Barthel Index (Granger et al, 1979) which is particularly suitable for neurological problems, and also the Health Assessment Questionnaire (Fries et al, 1980) and the Arthritis Impact Measurement Scales (Meenan et al, 1980) both of which are useful for arthritic disorders. There are also several well validated scales to assess emotional disturbance and other relevant psychological variables. In contrast, there is as yet no acceptable measure of social dimensions. As noted earlier, even in the ICIDH, the handicap section is less well developed than those dealing with impairment and disability. Operationalising and measuring handicap, as defined by the WHO classification, therefore presents a major challenge for future research.

Global assessments of disablement, popular with administrators and policy makers, present a different problem. While some advocate adding together measures of physical, psychological and social difficulties to give a cumulative 'score' or rating, we have reservations about such an approach. In our view, it is better to consider physical, psychological and social problems as three separate dimensions. This is illustrated diagramatically in Figure 11. For the sake of

Figure 11 Taxonomy in three dimensions of disturbance



simplicity, the severity of disturbance in any dimension in this example is graded as none, mild, moderate, marked or severe, but the intervals in each scale need not be identical in all dimensions and may be numerical. In this simplified model, a disabled person with moderately severe physical problems, mild difficulties in psychological adjustment but severe social problems would have coordinates of 2, 1 and 4. In looking at a group of patients therefore we can describe the relative severity of their problems in all dimensions and this is helpful in planning treatment. In the example given, treatment of the physical problems alone, even if highly successful, is still going to leave patient with major social difficulties, and the outcome of treatment in that case will be much less satisfactory than for a patient with identical physical problems who had no appreciable social difficulties. This is perhaps best illustrated by the treatment of patients with fractures of the neck of the femur. The fracture is usually fairly easy to treat surgically and the results of surgical treatment are highly successful in over 90 per cent of patients. Unfortunately, it usually occurs in elderly people many of whom lived a precarious existence, often alone and in unsatisfactory housing, prior to the fracture. Their period of hospitalisation therefore is often prolonged while attempts are made to improve their social support and arrange rehousing, even though the orthopaedic surgeon was able to fix, and forget about, the fracture within a few days of it happening.

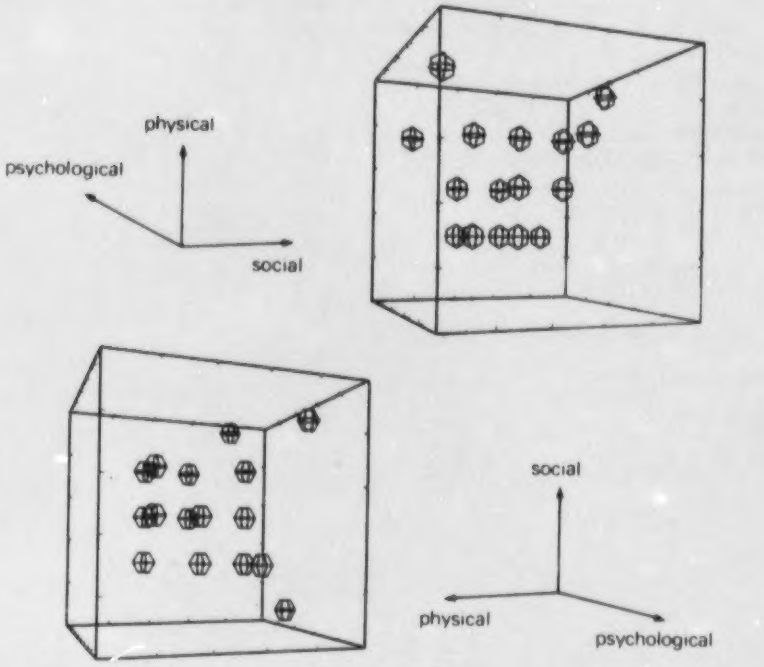
This simple model may also teach us something about the interrelationships between different dimensions of the clinical model of disability and handicap. The coordinates of a group of 17 patients with backache are shown in Figure 12. At first sight, the upper and lower parts of this figure appear to be completely different, but they are the same set of coordinates looked at from two different perspectives. When adjustment is made for perspective they will be seen to be the same. As you drive along the highway at the bottom of a valley the view is quite different from that obtained after climbing up to a high point. The landscape of the valley has not altered; it is your perception of it which has changed.

This example mirrors the arguments about clinical versus societal views of disability. As Croxen pointed out (Chapter Five), differences are essentially matters of perspective, and arguments on the relative merits of one or other view do not necessarily reduce the nature or scale of practical problems in everyday management of disability. We would liken the problem to building a bridge. From one side there have been significant advances in our understanding of clinical, psychological and individual factors while from the other there has developed a clearer recognition of the social and economic factors which are relevant to handicap. The examples we have given may illustrate the extent to which an effective bridging of the two has yet to be accomplished. This too is a major challenge for the future.

Timescales of recovery

There is of course an often overlooked, fourth dimension, and that is time.

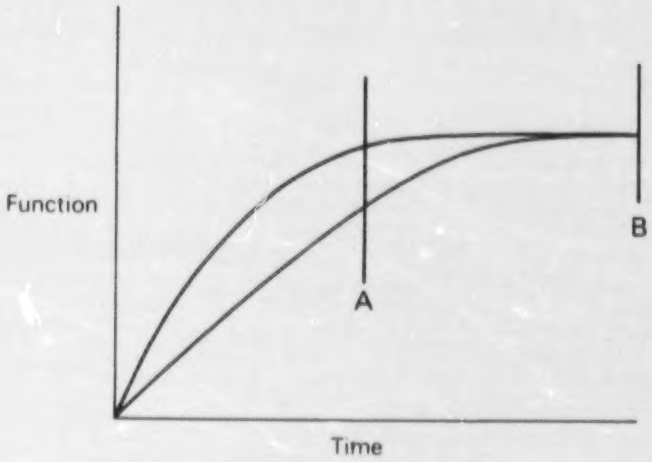
Figure 12 Schematic representation of severity scores in physical, social and psychological dimensions for 17 back pain patients viewed from two perspectives



In the upper illustration the origin is at the front left corner with the axes as shown. In the lower illustration the origin is in the rear right corner. The illustrations are of identical coordinates but viewed from different directions

Whereas the condition of a sick person usually changes fairly quickly (over days, weeks or months), changes in policy and practice take place slowly over years. Nevertheless, examination of the time course of disability may yield some general insights into the value and importance of therapeutic endeavours. For example, there is a widespread belief that a programme of rehabilitation will result in an improvement in function compared to the natural resolution of the problem. Regrettably, there is very little evidence to support this contention, although there is no doubt that individual patients are helped by various treatments. It is our belief that the main effect of most treatment programmes is to alter the rate at which particular levels of function are attained. This is illustrated diagramatically in Figure 13. Two hypothetical and idealised recovery curves are shown, the lower one being natural resolution of the condition while the upper one is the functional level achieved in the course of a programme of active management. The benefit of the rehabilitation programme is represented by the area between the curves. Thus, if the function which is being studied is measured at time A then a difference between the two recovery curves will be observed while at time B there is no difference. An example of this is the influence of surgically plating a lower limb fracture compared to conservative management in plaster of Paris. Surgically treated patients are able to get up and weightbear more quickly than patients who are treated conservatively, but after six months there is no appreciable difference in mobility between the two groups.

Figure 13 Idealised recovery curves



The upper curve shows the rate of recovery from illness or injury with help. The lower curve charts the natural history of the condition. The value of rehabilitation is shown by the area between the two curves.

We would suggest that it may be possible to compare the relative merits of two forms of treatment in two ways. Both involve taking regular measurements of a particular function at appropriate intervals over a period of time until a given level of function is achieved. One approach is to measure the area between the curves, as we have illustrated, but this may be difficult to accomplish in practice. Another simple and numerical method of comparing progress, derived from the study of the kinetics of enzyme reactions, would be to calculate rates of change in function at the time when half the final functional level was achieved. However, it must be stressed that this approach is relevant only to assessments of function and not to global measures of overall progress or outcome.

With some patients, particularly those with progressive diseases or in the elderly age group, the time course of functional recovery after a particular episode is affected by a decline in function due to the progress of those diseases or other diseases. The impact of psychosocial factors, particularly family and other social support networks, also has a major impact. One of the problems of treating patients whether in hospital or in their own homes, with an active programme of management is that, while this will show reasonably clearly the functional level that the patient can attain, that level of attainment is often different from the level they sustain when treatment is stopped. These two phenomena are illustrated by the work of Garraway et al (1978; 1980) who measured the independence levels of two groups of stroke patients. One group was treated with an energetic programme of occupational therapy in the early stages with a view to discharge back home with maximum support as quickly as possible, while the other group was given a less comprehensive and active programme of management. At three months, the actively treated group was significantly more independent than the control group, but after a year there was no difference in dependence; the independence levels in the actively treated group had declined while the control population had improved slowly to that level.

It is not always possible to show that an active programme of physical management makes any difference to the rate of recovery. Physiotherapists, for example, spend a lot of their time applying heat in various forms to treat painful soft- tissue lesions around joints. There is however no evidence that the heat has any direct therapeutic effect other than a soothing, counter-irritant and therefore analgesic action which may allow the patient or the therapist to put the affected joint through a range of movement which would not otherwise be possible. Also many patients obtain benefit from being treated even though the particular form of physical treatment which has been applied is not in itself of proven value. This is a placebo effect, but for many patients, particularly those with mild coping problems, it can be a very powerful therapeutic force. Again, some treatment programmes, which appear to have a physical basis help patients because of the psychosocial benefits they confer. Going to a clinic for therapy allows opportunities for social interaction not only with staff and other patients but often also with other members of the general public in the course of travelling to and from the appointment. Removal of boredom or frustration after a period of enforced inactivity is a very positive psychological stimulus. It also exemplifies the extent to which, in clinical management, removal of negative influences takes precedence over the introduction of positive ones.

In examining the timescale of recovery from an illness or accident, there is often an optimum 'window' for action or therapeutic intervention. Its importance becomes particularly obvious when psychological, social and economic dimensions are considered as well as physical recovery. The problem in an individual case is that the optimum moment for, say, return to work may not coincide with the optimum time physically or emotionally. For example, while it may be possible for an executive to return to work a few days after sustaining a severe hand injury, a labourer in the same factory with an identical injury which is healing at the same rate will have to stay off work until healing is much further advanced (see Chapter Eleven). If physical recovery is delayed, boredom, frustration or even depression may ensue, or employment may be jeopardised by the employer's need to engage someone else's services. Conversely, if an attempt is made to restart work when physical function is impaired but improving, there may be a failure to cope which may seriously jeopardise attitudes to subsequent re-employment.

Outcome

Höök and Jesperson's paper (Chapter Six) demonstrates that rehabilitation is most effective when appropriate help is provided in a well coordinated fashion as and when it is required. As patients make progress their requirements change from drugs, surgery, and physical and occupational therapy to the provision of aids to daily living and benefits and, ultimately, to access to appropriate social and employment rehabilitation services. In successful cases the need for specialised help usually diminishes: hence the old Scottish definition of practical rehabilitation as the "progressive removal of support". Consequently, for most patients who do not have a rapidly deteriorating or degenerative condition or poor prognosis, there is a point at which they reach an optimum level of physical, emotional and social function or 'outcome of rehabilitation'. Although this is generally recognised, our ability to measure such outcomes is still quite limited. Development of adequate measures of outcome is therefore one of the greatest challenges facing rehabilitaton.

It is our belief that achievement of this objective is dependent on taking at least two related new initiatives. The first would attempt to find more sophisticated and relevant definitions of satisfactory and unsatisfactory outcomes. For example, return to work, commonly used as an outcome measure in the past, may be too crude a measure in an age of high unemployment. We would endorse the view expressed by both Croxen and Philip (in Chapters Five and Thirteen, respectively) that, in future, satisfactory outcome may need to be much more broadly defined. The second new initiative would attempt to validate such outcome measures in the context of controlled trials (about which we have more to say later) so that we might be more certain that we are measuring the actual effects of interventions and not simply pre-treatment states or attitudes.

Noble's (1979) work, to which reference has already been made in earlier chapters, is important in showing that the outcome of vocational rehabilitation services may be more strongly influenced by a whole series of 'external' variables beyond the control or influence of service providers than by those variables that are within the power or capability of those service providers to control. Although clinicians may not often consciously acknowledge the broader societal constraints on rehabilitation practice to which Noble's work draws attention. They do of course recognise their influence in several different ways. For example, they often make observations like "We've been able to get this patient's rheumatoid arthritis under control and if only he had been an office worker rather than a labourer he would have been back at work". Such examples also show that an ideal medical result is not necessarily the same as an ideal overall outcome. This implies that measures of handicap may be more relevant than measures of disability not only in assessing outcome but in predicting it too.

Before taking a closer look at societal perspectives, it should be reiterated that the medical approach to disability and rehabilitation is a pragmatic one which operates within the constraints of available knowledge, facilities and services. Patients are also limited by these constraints. While research is quite rapidly adding to our stock of knowledge and helping to improve the effectiveness of treatments, there are still some considerable gaps between what is known and what is practised.

Societal perspectives

If the principal objectives of clinical management of disability are to remove obstacles to recovery and to help patients compensate for lost functions, the main objectives of societal interventions on behalf of people with disabilities are to promote a climate in which the benefits accruing from clinical initiatives are not wasted and to minimise handicap through the implementation of social and economic policies to combat discrimination and social disadvantage. Although policy on the employment of people with disabilities has tended to be treated as an aspect of economic policy, the problems involved really beg consideration against a much wider backdrop of relevant historical, social, cultural and political perspectives (Cornes, 1984).

In order to appreciate some of the problems confronting many people with disabilities in today's labour markets it is necessary to bear in mind the reasons why special services and policies were first introduced. In most countries, specialised vocational rehabilitation services and policies on the employment of disabled people originated from three main sources. These were: development in the voluntary sector of services for special groups like the blind and the deaf who previously had been excluded from the labour market; war-time manpower shortages which opened up employment opportunities in industry for groups who previously had been either marginal to, or out of, the labour market; and a moral climate in post-war years in which special efforts were made to re-integrate disabled ex-servicemen into national work forces. Present day policies and services therefore were inaugurated from a combination of motives which included care and concern for members of some disability groups, recognition that there should be some positive discrimination in favour of people with disabilities and, most importantly, economic necessity. While governments have taken a leading role in promoting relevant policies and services to help people with disabilities overcome employment handicap, the studies of Walker and Kettle (Chapters One and Two) are a reminder that employers have also made significant contributions.

Nevertheless, in the 1980s, a combination of recession, high unemployment and the introduction of modern technology has forced everyone to rethink radically their attitudes towards work and employment, and this has major implications for disabled people. The pattern of disability is also changing rapidly. In the 16-65 age group, the majority of disabled people are over 50 and are suffering from degenerative or progressive disorders rather than the after-effects of trauma. We must also remember that all existing policies and practices are based on the theory that the greater the intervention by agencies, the better will be the results. Some papers in this book (see Chapters Seven, Eight and Nine) have indicated that these interventionist policies may not have had the desired results. It will be necessary to re-evaluate these policies, or at least the way they are being implemented. It is difficult to suggest alternative policies at the moment because we do not have a detailed understanding of the workings of the economy or the labour market, particularly in a time of rapid technological and social change. Nor do we understand the impact of the labour market on the lives of disabled people. Furthermore, other social policies relating to housing, transport and education affect employment but the interactions are poorly understood. We can, however make some suggestions for future study, while bearing in mind an observation that Bert Massie, of the Royal Association for Disability and Rehabilitation, made during the conference workshop on employment that he never failed to be amazed that the major recommendation of most researchers was the need for more research!

Aspects of the lived world of disabled people

There is a need to study the many facets of life of disabled people in various societies and in particular their perspective on the labour market. How do they respond to opportunities which may crop up? How widespread is discrimination against them and, where it is thought to occur, is there any evidence as to whether this is due to medical factors, personality traits, or social acceptability? An understanding of the subjective reality of being disabled may help us identify those variables which are important for developing future policies. We must look not only at the problems of unemployed disabled people but also, as Massie suggested, at successful disabled people. How did they reach their current positions? Were they assisted by government or other agencies and what are their views on the system established to help them? Do they believe that this assistance could be improved? If so, what are the shortcomings and what improvements can be recommended?

We are therefore proposing that further naturalistic studies should be undertaken of the lives of disabled people, and that we should review the position of employment in the lives not only of disabled people but of non-disabled members of society. This will provide a clearer understanding of the interaction between disabled people and the varous elements of life in modern society of which employment is only one, albeit a major, aspect.

Attitudes

We have much information on the problems of disabled people in the labour market but have only a vague impression of the attitudes of non-disabled people towards people with disabilities. Undoubtedly there is still widespread misunderstanding of 'the disabled' in all sections of society including employers and fellow employees. Some of these attitudes are positive, for example, public support for financial benefits for disabled people and many aspects of society's response to the International Year of Disabled People. However, negative attitudes also persist, and there are still very real barriers to the social and economic integration of all disabled people.

Attitudes to work, among disabled and non-disabled people alike, cannot be separated from economic realities. Unemployment benefit in most countries is set at a low level. Benefits for disabled people are usually more generous. Therefore, because of the rules and regulations, some disabled people who are unemployed are better off than they would be if they were unemployed but not disabled. In most countries, there is also a small number of disabled people who are better off claiming the unemployment and other benefits available to them than they would be if they were actually working. This is clearly a disincentive which is offensive to the protestant work ethic, but it should be borne in mind that a disabled person living in these circumstances may reasonably be considered to have achieved the maximum of which he is capable, that is of being fully rehabilitated at least in the economic sense. However, this group is very unrepresentative of disabled people as a whole, and its members may have attracted a disproportionate share of attention. They need to be compared and contrasted with the much larger number of disabled people who take jobs which pay much less than the benefits to which they might be entitled, and who, in this respect, may differ from other long-term unemployed groups. Attitudes to disability and work among disabled and non-disabled people is another subject which may merit much closer scrutiny than it has received hitherto.

Eligibility and its assessment

Insofar as most policies towards disabled people seek to minimise their disadvantage in one way or another, the assessment of disability becomes very important. While it is easy to recognise people who are severely disabled as a result of conditions such as paraplegia, amputation or rheumatoid arthritis, and who may be in a wheelchair, the majority of disabled people suffer from only mild to moderate disability. The spectrum of severity of disability is a continuum with no hard and fast dividing lines between mild, moderate and severe disability. At what stage should one begin to acknowledge that someone is disabled and start awarding him the positive benefits which society has created for severely disabled people in its midst?

Legislators define eligibility in terms which are superficially attractive yet which are very difficult to operationalise. Consider, for example, Mobility Allowance, which may be awarded to someone who is unable to walk or virtually unable to walk. There is no difficulty in agreeing when someone is unable to walk. On the other hand, it is almost impossible to get more than a general consensus as to what 'virtually unable to walk' means and this creates considerable anger and frustration on the part of moderately disabled people who are refused the allowance yet see others who they feel are less disabled receiving it. The criteria for eligibility are usually related to the results of a single medical examination in which, by and large, impairment alone is assessed. In Great Britain, the employment rehabilitation service is therefore unique in measuring functional limitations and disability in an objective way over a period of weeks. There is a great need to assess disability rather than disease or impairment and we need to develop as a matter of urgency simple, reliable and valid measures of disability which can be used in this setting (Hunter 1984). Beyond this, there is a futher need to define eligibility for some benefits and services in terms of handicap rather than disablement. In Great Britain, and possibly elsewhere too (see Chapter Five), most disability benefits and services specifically exclude consideration of social circumstances from the decision on eligibility. This is paradoxical since the pressure to introduce these benefits and services sprang from a desire to minimize the social disadvantage or handicap suffered by disabled people!

Alternative employment strategies

As part of the general debate on the future of employment for people with disabilities, the possibilities of sheltered or diversionary work and part-time employment must be explored further. Part-time employment for disabled people has been proposed on a number of occasions (Davoud, 1980; Grover & Gladstone 1981; Robbins 1982) but little has been achieved in practice. This is partly a result of the way that the rules relating to other benefits were drawn up originally in Great Britain and partly to the changing patterns of morbidity and mortality in society as a result of advances in medical care. For example, some people with multiple sclerosis or rheumatoid arthritis are able to work for a few hours each day but are unable to work a full eight hour shift. They usually have difficulty in obtaining this type of employment yet part-time employment is increasing in Great Britain. In fact, most of the jobs which have been created in the last four years have been part-time jobs in service industries, staffed mainly by women. For the majority of these women, their wages represent the second income to the home. Even in those households where the wife has a part-time job and her husband is unemployed there are still effectively two (small) incomes in the home. The financial situation of the single disabled person living on his or her own is therefore much worse than that of a comparable married one whose spouse is working part-time. This is a group of disabled people whose circumstances merit further study.

Assessment and training

During the conference, Massie drew attention to outstanding research needs in the areas of vocational assessment and training. One of his concerns was the extent of past reliance on assessment of disabled people without assessing the jobs they might take up. As he observed, "Little attention appears to have been paid to analysing jobs and the various functions and abilities required to perform certain jobs. If we only assess people who fill jobs we should not be surprised if occasionally we put square pegs into round holes because.... only the peg has been assessed". Of course, some progress has been made in developing systems to match disabled workers to suitable jobs within their residual capacity and to accommodate disabled people by providing appropriate aids to employment and adaptions, as shown by the papers by Whalley and Watson and by Hartenbach et al (Chapters Three and Four). Nevertheless, there is a considerable potential both for the further development of such systems and for their take-up by employers in disability management programmes.

Of all the results of research reported in earlier chapters, Cumella's data showing the very poor outcome for former employment rehabilitation centre clients who were encouraged to undertake vocational training (Chapter Eight) are undoubtedly the most disappointing. Massie also expressed concern about this aspect of British services for disabled people. It would seem that, in a changing and increasingly technically sophisticated labour market, approaches to vocational training which have served well in the past are no longer serving an effective purpose. This has already been recognised in some countries, like Germany and Holland, where vocational training for disabled people is pitched at such a high level that there is fierce competition between employers for the 'graduates' of such courses. However success inevitably has a price, and in these cases that price is the fact that, presently, training benefits only an elite, with the remainder less well catered for. It would seem that research into how to spread the benefits of such high level training in modern technology amongst a larger number of disabled people would be a most profitable investment for all concerned.

Productivity versus participation

As Noble (1984) has pointed out, policies on the employment of people with disabilities represent a compromise or 'trade-off' between measures which seek to make the most productive use of resources in the creation of goods and services needed by society and other measures which seek to ensure the participation in society of those who cannot compete without assistance. If this were not so, there would be little reason for investment in sheltered industries, whose provision is only rarely justifiable on grounds of economic efficiency. In the past, this 'trade-off' has been part of what Croxen has identified as the 'hidden agenda' in the formulation of social and economic policies in this field, but circumstances are changing quite rapidly. For this reason, we believe that, if people with disabilities are not to lose out or be left behind in the competition for jobs in the labour markets of the future, policy studies should receive much more attention in rehabilitation research, and also much more support than they have attracted hitherto.

Controlled trials

As part of the new research initiatives we are recommending there may be scope for controlled trials to evaluate the effectiveness of particular rehabilitation policies and services. Such trials have proved to be beneficial to medicine, where it is arguable that their introduction was the single most important reason for the advances made in our understanding of disease in the last 30 years. In the past, rehabilitation has tended to shun controlled trials, with its professional personnel maintaining either that they were unnecessary or, in some instances, that they might be unethical. But such arguments are no more compelling (and may be even less compelling) than those which were debated when controlled trials were introduced in clinical medicine. We do not underestimate the difficulties involved, but there is little doubt that the adoption of such procedures, in line similar recent developments in the fields of community mental health and health indicators research (Biefang, 1984), would represent a major advance in socially and vocationally oriented rehabilitation research and would allow various interventions (and non-intervention) to be compared scientifically.

Conclusions

In this book we have brought together a number of papers on some aspects of research in the field of vocational rehabilitation. As noted in the introduction, they are not necessarily representative of the field, but some general insights into vocational rehabilitation and policy on the employment of disabled people can be gained from reading them. In this chapter, we have tried to draw attention to some overarching problems and issues, viewed from definitional, clinical, and societal perspectives. Firstly, whether consumers, practitioners, educators, administrators, policy makers or researchers, those involved in rehabilitation practice and policy have yet to achieve a good measure of agreement over how problems are best conceptualised and how terms in common use should be defined. We have attempted to draw attention to this problem and to give some examples of how basic concepts might be operationalised. Secondly, while there is a wealth of information on disability and handicap from both clinical and societal perspectives, an effective bridging between these different approaches has yet to be achieved. It is hoped that this chapter has helped to identify some of the steps that would need to be taken in order to achieve a better reconciliation between these approaches. Thirdly, the studies reported in this book have revealed that considerable scope exists to improve the efficiency and effectiveness of specific policies and services and to improve coordination between them. We have tried to identify some of the main areas where such work is required.

Finally, we believe that independent and objective scientific research has a crucial part to play in the evaluation both of existing policies and services and of any new initiatives in this field. It is therefore our firm conviction that one of the principal aims of future research in rehabilitation should be the production of facts which can be used to support arguments to bring about social, economic and political changes for the benefit of disabled people. If policy makers had available to them the results of studies on the lives of disabled people they would have to rely less on lobbies of vociferous minorities (whether professional or consumer) who are not necessarily representative of the best interests of disabled people as a whole. Research into the nature of the labour market and other aspects of social and economic policy as they affect disabled people should lead to the formulation of better policies for all citizens and not just those who are disabled. However, it would be naive to believe that political decisions are made on the basis of factual research: government departments are notoriously good at picking up statistics which support their policy decisions and in neglecting those which conveniently contradict decisions which they have already made. Nevertheless, in a democratic society, it is more difficult to introduce a new policy which flies in the face of facts. The corollary of this argument is that lobbyists for disabled people should all be prepared to accept the results of research, even if it does not support their cherished beliefs or the continuation of established but ineffective policies or services.

Acknowledgement

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